```
************************************
* FINAL [illegible] ATARI VCS "MR. DO!"
* FINAL VERSION.... 9/11/83
* BY ED ENGLISH OF INDIVIDEO,INC
************************************
                                 ;
* 1ST 4K BANK OF MR.DO! ->
                                 ;
* THIS IS THE MAIN FILE FOR BANK1
* OF MR.DO!
************************************
TOP2        =     $3012
BEGORG      =     $2000
BEGOBJ      =     $8004
                                 ;
            LST   ON
************************************
* ATARI 2600 EQUATE FILE           *
************************************
            PUT   MR.DO.VCSDEF1
            PAG
************************************
* RAM DEFINITION & EQUATES         *
************************************
            PUT   MR.DO.EQU
            PUT   MR.DO.SOUND EQUATES
                                 ;
            ORG   BEGORG-4
            DA    BEGORG
            DA    END
            PAG
************************************
* POWERUP INITIALIZATION           *
************************************
            PUT   MR.DO.INIT
            PAG
************************************
* BOTTOM VERTICAL INTERVAL         *
************************************
            PUT   MR.DO.BOTVI
            PAG
************************************
* APPLE CONTROL CODE               *
************************************
            PUT   MR.DO.APPLE
            PAG
************************************
* VERTICAL RETRACE CODE            *
************************************
            PUT   MR.DO.VINT
            PAG
************************************
* JOYSTICK & SWITCH READING        *
************************************
            PUT   MR.DO.JOYSTICK
            PAG
************************************
* POWERBALL CONTROL CODE           *
************************************
            PUT   MR.DO.PWRBALL
```

```
*******************************
* BANK SWITCH FOR REST OF TOPVI*
*******************************
          JMP  TOPSW
          PAG
*******************************
* BANK1 SUBROUTINES           *
*******************************
          PUT  MR.DO.SUBS1
          PAG
          PUT  MR.DO.FIELD.RTNS
          PAG
          OBJ  BEGOBJ+$E07
          ORG  BEGORG+$E07
*******************************
* ORCHARD DATA TABLES         *
*******************************
          PUT  MR.DO.FIELD DATA
          PAG
          OBJ  BEGOBJ+$F00
          ORG  BEGORG+$F00
*******************************
* CHERRY DATA TABLES          *
*******************************
          PUT  MR.DO.CHERRY TABLES
          PAG
          OBJ  BEGOBJ+$FFC
          ORG  BEGORG+$FFC
          DA   PWRUP
 END

:ASM
```

```
*/ MR.DO.BANK1(PAL) LAST EDIT:9/15/83
********************************
* FINAL LISTING FOR ATARI VCS "MR. DO!"
* PAL VERSION.... 9/11/83
* BY ED ENGLISH OF INDIVIDEO,INC
********************************
                                ;
* 1ST 4K BANK OF MR.DO! ->
                                ;
* THIS IS THE MAIN FILE FOR BANK1
* OF MR.DO!
********************************
TOP2        =     $3012
BEGORG      =     $2000
BEGOBJ      =     $8004
                                ;
********************************
* ATARI 2600 EQUATE FILE       *
********************************
             PUT   MR.DO.VCSDEF1
*FILE: MR.DO.VCSDEF1
*ATARI VCS VIDEO REGS + 6532 RIOT
*********************************
                                ;
ATSYNC      =     $00           ;B1=1 BRINGS GUN HOME.
ATBLNK      =     $01           ;B1=1 TURN GUN OFF.
ATWAIT      =     $02           ;STOP 6507 UNTIL END OF LINE.
ATACTL      =     $04           ;SPRITE/MISSLE A CONTROL-
ATBCTL      =     $05           ;SAME AS ATACTL FOR SPRITE B.
ATACOL      =     $06           ;SPRITE/MISSLE A COLOR.
ATBCOL      =     $07           ;COLOR SPRITE B
ATFCOL      =     $08           ;FIELD COLOR
ATSCOL      =     $09           ;SCREEN COLOR
ATFCTL      =     $0A           ;FIELD DATA/MISSLE CONTROL
ATSALA      =     $10           ;SPRITE A HORIZ LATCH.
ATSBLA      =     $11
ATADAT      =     $1B           ;SPRITE A DATA.
ATBDAT      =     $1C           ;SPRITE B DATA
ATMVIN      =     $2A           ;ADDS INCR. TO SPRITE & MISSLE POS
ITIONS.
ATREMV      =     $2B           ;RESET ALL 5 INCREMENT REGS.
ATJBA       =     $3C           ;JOY BUTTON A.
JOYDAT      =     $280          ;JOYSTICKDATA (PORT A).ALSO PADDLE
 BUTTONS.
                                ;0=CLOSED  1=OPEN
*   JOYDAT BITMASKS-->
*---------------------------
JOYAUP      =     $10           ;A UP
JOYADN      =     $20           ;A DOWN
JOYALT      =     $40           ;A LEFT
JOYART      =     $80           ;A RIGHT
                                ;
                                ;
SWITCH      =     $282          ;PANEL SWITCHES (PORT B).
*   BIT MASKS FOR SWITCH-->
*----------------------------------
SWIRES      =     $01           ;GAME RESET
SWISEL      =     $02           ;GAME SELECT
SWICOL      =     $08           ;TV TYPE(0=BW, 1=COL)
SWIADF      =     $40           ;PLAYER A DIFFICULTY
SWIBDF      =     $80           ;         B
                                ;
*  6532 READ-ONLY REGS
*---------------------------
TIMER       =     $284          ;TIMER
```

```
>44    TIME64    =    $296        ;TIMER/64.
```

```
***********************************
* RAM DEFINITION & EQUATES        *
***********************************
         PUT   MR.DO.EQU
*/MR.DO.EQU (PAL) LAST EDIT:9/15/83
***********************************
*                                 *
*    *****      *      *   *      *
*    *   *     * *     ** **      *
*    *****    *****    * * *      *
*    **       *   *    *   *      *
*    * *      *   *    *   *      *
*    *  **    *   *    *   *      *
*                                 *
***********************************
*     GAME CONTROL RAM            *
*----------------------------------
GAME     =     $80         ;B0-B3 = GAME NUM.
ROUND    =     $81         ;B0-B3 = ROUND NUM.
                           ;
***********************************
*          SCORE DATA             *
*----------------------------------
SCORLO   =     $82         ;LO 2 SCORE DIGITS.
SCORHI   =     $83         ;HI 2 SCORE DIGITS.
                           ;
FRAMEL   =     $84         ;FRAME COUNT LO.
FRAMEH   =     $85         ;FRAME COUNT HI.
                           ;
***********************************
*         SOUND DATA              *
*----------------------------------
AIDX     =     $86         ;IDX TO CH A SOUND.
BIDX     =     $87         ;IDX TO CH B SOUND.
ADUR     =     $88         ;DURATION OF CH A SOUND.
                           ;ZERO  = GET NEXT NOTE.
                           ;MINUS = NO SOUND ON.
BDUR     =     $89         ;DURATION OF CH B SOUND.
                           ;
***********************************
*    MISC.  STATUS  BYTES-->      *
***********************************
DIGINV   =     $8A         ;NUM DIGGERS LEFT.
ALPHA    =     $8B         ;ALPHA MONSTER STATUS.
                           ;B0-B2=IDX FOR CHANNEL SELECT.
                           ;B3-B7=LETTER GOTTEN FLAGS.
CHERRYT  =     $8C         ;CHERRY TIMER/NOTE PTR.
                           ;B0-B4=TIMER SINCE LAST CHERRY EAT
EN.
                           ; (0=TIMER EXPIRED).
                           ;B5-B7=NOTE IDX FOR NEXT CHERRY EA
TEN SOUND.
                           ;
APFALL   =     $8D         ;APPLE FALLING IDX.
                           ;B7=1=NO APPLE FALLING.
                           ;B4-B6=WHICH APPLE IS FALLING.
                           ;B0-B3=STAGE TIMER.
ANIM8    =     $8E         ;ANIMATION FLAGS.
                           ;B7=MR DO BEING DRAGGED.
                           ;B6=DIG1 BEING DRAGGED.
                           ;B5=DIG2 BEING DRAGGED.
                           ;B1=ALF MONSTER OUT.
                           ;B0=MR DO IMG.FLIP/FLOP.
FCOLOR   =     $8F         ;FIELD (ORCHARD) COLOR.
***********************************
```

```
*       CHERRY DATA                    *
*-------------------------------------
                                       ;8 BYTES ($90-$97).
CHERRYC  =      $90                    ;CHERRY CONTROLS FOR 8 BANDS.
                                       ;B0-B2 = CONTROL VALUE (REF/SPACIN
G).
                                       ;B3-B6 = IDX TO CPOF TABLE.
                                       ;B7 = NO CHERRY/SOME CHERRY FLAG.
                                       ;
**************************************
*       ASYM FIELD DATA                *
*-------------------------------------
                                       ;32 BYTES ($98-$B7).
FR1L     =      $98                    ;8 BANDS OF FR1 LEFT DATA.
FR2L     =      $A0                    ;8 BANDS OF FR2 LEFT DATA.
FR2R     =      $A8                    ;8 BANDS OF FR1 RIGHT DATA.
FR1R     =      $B0                    ;8 BANDS OF FR2 RIGHT DATA.
                                       ;
LASTJY   =      $B8                    ;LAST LEGAL JOY (MR.DO. DIR).
                                       ;
**************************************
*       MISSLE DATA                    *
*-------------------------------------
MISLN    =      $B9                    ;MIS LINENUM.
MSBAND   =      $BA                    ;MIS VERT POS.
                                       ;B0-B3 = LN OFFSET.
                                       ;B4-B6 = BAND NUM.
                                       ;B7 = ON/OFF FLAG.
                                       ;
MISPOF   =      $BB                    ;MIS HORIZ POS.
                                       ;B0-B6 = IDX TO POSTBL.
                                       ;B7 = MIS AVAILABLE FLAG.
                                       ;
MISDIR   =      $BC                    ;MIS DIRECTION.
                                       ;B0-B1 = MIS DIRECTION.
                                       ;ALSO DOUBLES AS TIME
                                       ;BEFORE PWRBALL AVAIL AGAIN.
                                       ;
                                       ;
**************************************
*    MR.DO & DIGGER DATA               *
*-------------------------------------
DOBAND   =      $BD
DIGBAND  =      $BE                    ;DIG VERT POS.
                                       ;B0-B3 = LN OFFSET.
                                       ;B4-B6 = BAND NUM.
                                       ;B7= ON/OFF FLAG.
                                       ;
DOPOF    =      $C0
DIGPOF   =      $C1                    ;DIG HORIZ POS.
                                       ;B0-B6 = IDX TO POSTBL.
                                       ;
DODAT    =      $C3
DIGDAT   =      $C4                    ;DIG DATA PTR.
                                       ;
DIGDIR   =      $C6                    ;DIG CONTROL.
                                       ;B0-B1 = DIRECTION.
                                       ;B7 = DIGGING FLAG.
DIGSPD   =      $C8                    ;DIG SPEED.
                                       ;(IDX TO SPDTBL)
                                       ;B0= UP SPEED.
                                       ;B1= DOWN SPEED.
                                       ;B2= LEFT SPEED.
                                       ;B3= RIGHT SPEED.
                                       ;
DIGTIM   =      $CA                    ;DIG STAGE TIMER.
```

```
DIGIQ      =     $CC           ;DIG INTELLIGENCE.
                               ;B0-B2=HOW MANY CCELLS TO GO
                               ;BEFORE TRYING NEW DIR.
MUX        =     $CE           ;NUMO TO 2 FOR MUX MGR.
                               ;
                               ;
********************************
*       APPLE  RAM             *
********************************
                               ;8 BYTES ($D0-$D7).
APBAND     =     $D0           ;APPLE POS.
                               ;B0-B3 = IMG TBL IDX.
                               ;B4-B6 = BAND NUM.
                               ;B7 = ON/GONE FLAG.
                               ;
APPOF      =     $D4           ;APPLE HORIZ POS.
                               ;B0-B6 = IDX TO POSTBL.
                               ;B7 = FALLING FLAG.
PWRTIM     =     $D8           ;IDX TO PTIME FOR WHEN BALL AVAIL
AGAIN.
MODE       =     $DA           ;GAME MODE.
RANDOM     =     $D9           ;FREE RUNNING RANDOM #.
DOINV      =     $DB           ;NUM MR DO'S LEFT.
                               ;
********************************
*   TEMPORARY (SHARED) RAM     *
*-------------------------------
                               ;36 BYTES ($DC-$FF).
                               ;
*  RAM USED TO PAINT PLAYFIELD->
********************************
PTR        =     $DC           ;SA IMG PAGE FLAGS FOR 8 BANDS.
                               ;
BAND       =     $DD           ;BAND NUM
                               ;
* SPRITE A (DIG,APPLE) DISPLAY RAM
*  ($DE-$EE)
**********************************
LODATA     =     $DE           ;LO ADDRS SA (8 BANDS).
ADAT       =     $E5           ;LO ADDR FOR SA INDIRECT.
HIDATA     =     $E6           ;HI DATA ADDRS FOR SA.
                               ;$E7-$EE->
APOF       =     $E7           ;SA POFS.
                               ;
* SPRITE B (MR DO,CHERRY) DISPLAY RAM
*   ($EF-$FF)
************************************
LODATB     =     $EF           ;LO ADDRS SB (8 BANDS).
BDAT       =     $F6           ;LO ADDR FOR SB INDIRECT.
HIDATB     =     $F7           ;HI DATA ADDR FOR SB.
                               ;$F8-$FF->
                               ;**********
BPOF       =     $F8           ;SB POF VALUES FOR 8 BANDS.
                               ;
                               ;
*  TEMP VERTICAL INTERVAL RAM
*------------------------------
TEMP14     =     $EA
TEMP15     =     $EB
TEMP11     =     $EC
TEMP12     =     $ED
TEMP13     =     $EE
TEMP1      =     $EF
TEMP2      =     $F0
TEMP3      =     $F1
TEMP4      =     $F2
```

```
TEMP5     =     $F3
TEMP6     =     $F4
TEMP7     =     $F5
TEMP8     =     $F6
TEMP9     =     $F7
TEMP10    =     $F8
                               ;
* RAM FOR DISPLAYING 6 SPRITES->
* NOTE-THIS RAM PLUS TEMP1,2,3 DOES
* NOT CONFLICT WITH SA DISPLAY RAM.
*******************************
PD100K    =     $F2
PD10K     =     $F4
PD1K      =     $F6
PD100     =     $F8
PD10      =     $FA
PD1       =     $FC
                               ;
```

```
********************************
*                              *
*   *****    *****     *    *  *
*   *        *   *     *    *  *
*   ***      *   *     *    *  *
*   *        *   *     *    *  *
*   *        *   **    *    *  *
*   *****    ***** *   ******  *
*                              *
********************************
*     COLOR   EQUATES          *
*------------------------------*
                           ;
BLACK     =     0
WHITE     =     $0E
RED       =     $22
YELLOW    =     $28
GREEN     =     $34
ORANGE    =     $28
BLUE      =     $B6
PURPLE    =     $68
BROWN     =     $12
GOLD      =     $16
LBLUE     =     $96
                           ;
SCRCOL    =     BLACK      ;BKGND COLOR OF ORCHARDS.
                           ;
********************************
*  DIRECTION EQUATES ->        *
*-------------------------------
* STARTING IDXS FOR EACH DIR IN DIRTBL->
UPI       =     0
DOWNI     =     4
RIGHTI    =     8
LEFTI     =     12
                           ;
* DIRECTION VALUES-->
UPD       =     0
DOWND     =     1
RIGHTD    =     2
LEFTD     =     3
                           ;
********************************
*    GAME MODES-->             *
********************************
RESUM     =     $80        ;RESUME PLAY MODE(1 SEC BLACK).
XTRADO    =     $70        ;EXTRA MR.DO.WON.
TRACK     =     $50        ;ALT CFMD+ ORCH.
GAMOVR    =     $40
SELECT    =     $30        ;SELECT MODE.
DODEAD    =     $20
PLAY      =     $10
                           ;
********************************
*  VERT INTERVAL TIMER EQUATES *
*-------------------------------
* TOTAL PICTIME (TITLE & ORCH)=178 LINES.
                           ;44 LINES.
TOPTIM    =     $A9+10     ;TOPVI TIMER VALUE.
                           ;51 LINES.
MIDTIM    =     $AD+15     ;TIME TO PAINT SCORE,EXTRA + SET RAM UP.
                           ;39 LINES.
BOTTIM    =     $9F+13     ;BOTVI TIMER VALUE.
                           ;---------
```

```
                                             ;312 LINES.
                          PUT   MR.DO.SOUND EQUATES
                 */ SOUND EQUATES LASTED 7/8/83
                                             ;
                 * OFFSETS FROM SNDTBL-->
                 ********************************
                 DEADSND   =     0
                 BEEP      =     8
                 BOOP      =     $0E
                 BELLS     =     $14
                                             ;CHERRY NOTES->
                 CHER1     =     $1C
                 CHER2     =     $29
                 CHER3     =     $36
                 CHER4     =     $43
                 CHER5     =     $50
                 CHER6     =     $5D
                                             ;
                 * OFFSETS FROM AMUSFW (MUSIC)->
                 ********************************
                 SONG1     =     0           ;ORCHARD SONG.
                 SONG2     =     $31         ;END SONG.
                 SONG3     =     $51         ;DO DEAD SONG.
                                             ;
                          ORG   BEGORG-4
1FFC: 00 20               DA    BEGORG
1FFE: FE 2F               DA    END
```

```
                 ********************************
                 * POWERUP INITIALIZATION       *
                 ********************************
                          PUT  MR.DO.INIT
                 */ MR.DO.INIT   LASTED:7/27/83.
                 *
                 * BANK SWITCH TO 2ND BANK->
                 ********************************
                 TOPSW
2000: AD F9 FF            LDA  $FFF9
2003: 4C 12 30            JMP  TOP2         ;CONT.W/TOPVI.
                 * COME HERE FROM BANK 2-->
                 ********************************
2006: EA                  NOP
2007: EA                  NOP
2008: EA                  NOP
2009: EA                  NOP
200A: 4C 2E 20            JMP  BOTVI
200D: EA                  NOP
200E: EA                  NOP
200F: EA                  NOP
2010: EA                  NOP
2011: EA                  NOP
                                            ;
                 * ENTER HERE FOR BANK2 POWERUP->
                 ********************************
                 PWRUP
2012: 78                  SEI
2013: D8                  CLD
2014: A2 00               LDX  #0
2016: 8A                  TXA
2017: 95 00      CLRAM    STA  0,X
2019: 9A                  TXS
201A: E8                  INX
201B: D0 FA               BNE  CLRAM
                 *
                 * GO INIT CHERRY,FIELD MAP,MUGS,APPLES,ETC-->
                 ****************************************
                                            ;ROUND=0
201D: 20 A7 29            JSR  IROUND
                                            ;NO SONG->
                                            ;
2020: A9 30               LDA  #SELECT      ;TRACK MODE
2022: 85 DA               STA  MODE         ;GAME NUM=0
                                            ;
2024: A9 FF               LDA  #$FF
2026: 85 88               STA  ADUR
2028: 85 89               STA  BDUR         ;NO SND.
                                            ;
202A: A9 31               LDA  #$31         ;8X MIS.
202C: 85 0A               STA  ATFCTL       ;MIRROR.
                                            ;
                                            ;
```

```
                ********************************
                * BOTTOM VERTICAL INTERVAL     *
                ********************************
                        PUT   MR.DO.BOTVI
                */ MR.DO.BOTVI LASTED: 9/15/83
                ********************************
                *  BOTTOM VERTICAL INTERVAL    *
                ********************************
                BOTVI
202E: A9 AC             LDA   #BOTTIM
2030: 85 02             STA   ATWAIT
2032: 8D 96 02          STA   TIME64      ;INIT TIMER.
2035: A5 DA             LDA   MODE
2037: C9 10             CMP   #PLAY
2039: F0 03             BEQ   PMODE
                                          ;
                *SKIP MOST BOTVI IF NOT PLAY MODE
                ********************************
203B: 4C 3C 23          JMP   ENDBOT
                                          ;
                * ARE ALL DIGGERS DEAD???
                ********************************
                PMODE
203E: A9 F8             LDA   #$F8
2040: 25 8B             AND   ALPHA
2042: C9 F8             CMP   #$F8        ;ALL LETTERS HAD?
2044: F0 0C             BEQ   EATTST      ;J Y.(SKIP DIGS DEAD TEST)
                                          ;
2046: A5 BE             LDA   DIGBAND
2048: 10 08             BPL   EATTST
204A: A5 BF             LDA   DIGBAND+1
204C: 10 04             BPL   EATTST
                                          ;BOTH DIGS ARE OFF->
204E: A5 8A             LDA   DIGINV      ;ANY DIGS LEFT?
2050: F0 0D             BEQ   NEWRND      ;J N.
                                          ;
                ********************************
                * TEST IF ALL CHERRIES ARE GONE*
                ********************************
                EATTST
2052: A5 89             LDA   BDUR
2054: 10 19             BPL   SOMLFT      ;JP SONG ON.
2056: A2 07             LDX   #7
                ALGONE
2058: B5 90             LDA   CHERRYC,X
205A: 30 13             BMI   SOMLFT      ;JP SOME CHERRY LEFT.
205C: CA                DEX
205D: 10 F9             BPL   ALGONE
                                          ;ELSE ALL CHERRIES GONE.
```

```
                    * PREPARE TO START NEW ROUND->
                    ********************************
                    NEWRND
205F: A9 80                     LDA  #RESUM
2061: 85 DA                     STA  MODE
                                               ;PLAY ROUND OVER SONG->
2063: A9 00                     LDA  #SONG1
2065: 20 2C 2D                  JSR  SONG
                                               ;
2068: A9 D8                     LDA  #$D8      ;SHORT DELAY BETWEEN
206A: 85 84                     STA  FRAMEL    ;SCREENS.
206C: 4C 3C 23                  JMP  ENDBOT
                    SOMLFT
```

```
                                                ;
                * MR. DO  V. DIG HIT TEST->       *
                ********************************
206F: A5 BD             LDA  DOBAND
2071: 4A                LSR
2072: 4A                LSR
2073: 4A                LSR
2074: 4A                LSR
2075: 85 EF             STA  TEMP1          ;SV DO BAND.
2077: A2 01             LDX  #1             ;TRY BOTH DIGGERS->
                HIT2
2079: B5 BE             LDA  DIGBAND,X
207B: 30 15             BMI  NXTTRY         ;JP DIG IS OFF.
207D: 4A                LSR
207E: 4A                LSR
207F: 4A                LSR
2080: 4A                LSR
2081: C5 EF             CMP  TEMP1          ;ON SAME BAND?
2083: D0 0D             BNE  NXTTRY         ;JP NO.
                                            ;
                                            ;
                *  DO RANGE TEST FOR HORIZ POS->
                ********************************
2085: 38                SEC
2086: A5 C0             LDA  DOPOF
2088: F5 C1             SBC  DIGPOF,X
208A: C9 02             CMP  #2
208C: 90 17             BCC  MDOHIT
208E: C9 FE             CMP  #$FE
2090: B0 13             BCS  MDOHIT
                NXTTRY
2092: CA                DEX
2093: 10 E4             BPL  HIT2           ;TRY OTHER DIGGER.
2095: 4C C0 20          JMP  NOHIT          ;ELSE TRIED BOTH.
                * ADD DIGS BACK TO INVENTORY->
                ********************************
                INCINV
2098: A5 BE             LDA  DIGBAND
209A: 30 02             BMI  II5
209C: E6 8A             INC  DIGINV
                II5
209E: A5 BF             LDA  DIGBAND+1
20A0: 30 02             BMI  II9
20A2: E6 8A             INC  DIGINV
                II9
20A4: 60                RTS
                                            ;
```

```
                * MR DO IS HIT BY A DIGGER-->
                *******************************
                MDOHIT
20A5: A9 20                    LDA   #DODEAD
20A7: 85 DA                    STA   MODE
                                                ;
                NOMORE
20A9: A9 51                    LDA   #SONG3
20AB: 20 2C 2D                 JSR   SONG       ;PLAY DEAD SONG.
20AE: 20 98 20                 JSR   INCINV     ;ADD DIGS BACK.
                                                ;
20B1: A9 00                    LDA   #0
20B3: 85 84                    STA   FRAMEL
20B5: A9 04                    LDA   #4
20B7: 85 BC                    STA   MISDIR     ;BRIEF DELAY.
20B9: A9 FF                    LDA   #$FF
20BB: 85 BA                    STA   MSBAND     ;BALL IS UNAVAIL.
20BD: 4C 3C 23                 JMP   ENDBOT
                NOHIT
                                                ;
```

```
              ********************************
              * FIELD HIT DETECT
              * REMOVE BIT IN FLD MAP WHERE MOST OF MR DO IS-->
              * ALSO WHERE DIGGERS ARE.
              ********************************
20C0: A5 BD            LDA  DOBAND
20C2: A6 C0            LDX  DOPOF
20C4: 20 B6 2D         JSR  FMRMV      ;RMV BITS IN FIELD MAP.
                                       ;
              *  REMOVE FIELD WHERE DIGGERS ARE
              ********************************
20C7: A0 01            LDY  #1
              FLDOUT
20C9: B9 CA 00         LDA  DIGTIM,Y   ;DIGGING?
20CC: 10 0A            BPL  FMAP2      ;J N.
20CE: B9 BE 00         LDA  DIGBAND,Y
20D1: 30 05            BMI  FMAP2      ;J DIG OFF.
20D3: B6 C1            LDX  DIGPOF,Y
20D5: 20 B6 2D         JSR  FMRMV      ;RMV FIELD.
              FMAP2
20D8: 88               DEY
20D9: 10 EE            BPL  FLDOUT     ;DO BOTH.
```

```
                    *******************************
                    * MOVE BADGUYS-CHASE MR.DO-->  *
                    *******************************
20DB: A5 89                  LDA  BDUR
20DD: 30 05                  BMI  MVCHK       ;JP MUSIC NOT ON.
20DF: 4C 3C 23               JMP  ENDBOT
                                              ;
                    * MASKS FOR DIGS BEING DRAGGED.
                    DRAGTB
20E2: 40 20                  DFB  $40,$20
                    *******************************
                    * A BADGUY/DIGGER ALWAYS CONTINUES MOVING IN A DIRECTION
                    * UNTIL HE'S IN A CHAR CELL. THIS MEANS WHEN HE HAS TO
                    * DECIDE WHICH DIRECTION TO MOVE NEXT, HE ALWAYS
                    * HAS ALL 4 DIRECTIONS TO CHOOSE
                    *******************************
                    MVCHK
20E4: A5 DA                  LDA  MODE
20E6: C9 10                  CMP  #PLAY
20E8: F0 03                  BEQ  MVC1        ;J PLAY MODE.
                    NMOV
20EA: 4C 3C 23               JMP  ENDBOT      ;ELSE DON'T MOVE DIGS.
                    MVC1
20ED: A5 84                  LDA  FRAMEL
20EF: 29 01                  AND  #1
20F1: AA                     TAX              ;X=WHICH DIG TO MOV.
20F2: E8                     INX              ;MAKE 1 OR 2.
20F3: BD E1 20               LDA  DRAGTB-1,X  ;GET DRAG BIT MASK.
20F6: 25 8E                  AND  ANIM8       ;BEING DRAGGED?
20F8: D0 F0                  BNE  NMOV        ;ELSE HE CAN'T MOVE.
20FA: B5 BD                  LDA  DOBAND,X    ;GET DIGBAND.
20FC: 30 EC                  BMI  NMOV        ;J IF OFF
20FE: B5 C0                  LDA  DOFOF,X     ;GET DIGFOF.
2100: 29 07                  AND  #7
2102: D0 09                  BNE  KEEPMV      ;JP NOT ON A COL,KEEP MOVING IN LA
ST DIR.
                                              ;
                    * DIGGER IS ON A COLUMN-->
                    *******************************
2104: B5 BD                  LDA  DOBAND,X
2106: 29 0F                  AND  #$0F
2108: D0 03                  BNE  KEEPMV      ;JP NOT W/I A BAND TOO.
210A: 4C A8 21               JMP  NEWMOV
```

```
                *KEEP DIGGER MOVING IN SAME DIR->
                * BECAUSE HE'S NOT IN A CC YET.
                ********************************
                KEEPMV
210D: B5 C5                LDA  DIGDIR-1,X
210F: 29 03                AND  #3          ;KEEP ONLY DIR BITS.
2111: C9 00                CMP  #UPD
2113: D0 24                BNE  KM5         ;JP NOT UP.
                *  MOVE HIM UP-->
                ********************************
2115: B4 C7                LDY  DIGSPD-1,X
2117: B9 95 2F             LDA  SPDTBL,Y
211A: 29 01                AND  #1
211C: 85 F5                STA  TEMP7       ;UP SPD.
                MVU2
211E: 20 F7 2B             JSR  MUP         ;MOVE HIM UP.
                                            ;USED T1.
2121: 90 03                BCC  MVU3
2123: 4C C0 21             JMP  ABORT       ;J CAN'T MV.
                MVU3
2126: B5 BD                LDA  DOBAND,X
2128: 29 0F                AND  #$0F
212A: F0 0A                BEQ  ENDMV       ;IF IN CC DON'T MV AGAIN.
212C: C6 F5                DEC  TEMP7
212E: 30 06                BMI  ENDMV
2130: A5 D9                LDA  RANDOM
2132: 29 02                AND  #2
2134: F0 E8                BEQ  MVU2        ;MV AGAIN.
                ENDMV
2136: 4C 3C 23             JMP  ENDBOT
                KM5
2139: C9 01                CMP  #DOWND
213B: D0 21                BNE  KM7         ;JP NOT DOWN.
                *  MOVE HIM DOWN-->
                ********************************
213D: B4 C7                LDY  DIGSPD-1,X
213F: B9 95 2F             LDA  SPDTBL,Y
2142: 29 02                AND  #2
2144: 4A                   LSR
2145: 85 F5                STA  TEMP7       ;DOWN SPD.
                MVD2
2147: 20 AF 2B             JSR  MDOWN       ;MOV HIM DOWN.
                                            ;USED T1.
214A: B0 74                BCS  ABORT       ;J CAN'T MOV.
214C: B5 BD                LDA  DOBAND,X
214E: 29 0F                AND  #$0F
2150: F0 E4                BEQ  ENDMV       ;DON'T MV AGAIN IF IN CC.
2152: C6 F5                DEC  TEMP7
2154: 30 E0                BMI  ENDMV
2156: A9 02                LDA  #2
2158: 25 D9                AND  RANDOM
215A: F0 EB                BEQ  MVD2        ;MOVE AGAIN
215C: D0 D8                BNE  ENDMV
                                            ;
                KM7
215E: C9 03                CMP  #LEFTD
2160: D0 22                BNE  KMRT        ;JP NOT LEFT.
                *  MOVE HIM LEFT-->
                ********************************
                KMLFT
2162: B4 C7                LDY  DIGSPD-1,X
2164: B9 95 2F             LDA  SPDTBL,Y
2167: 29 04                AND  #4
2169: 4A                   LSR
216A: 4A                   LSR
```

```
216B: 85 F5                   STA  TEMP7       ;LFT SPD.
                     KML2
216D: 20 A6 2C                JSR  MLEFT       ;MOVE HIM LEFT.
                                               ;USED T1,T2,T3,T4.
2170: B0 4E                   BCS  ABORT       ;J CAN'T MOV.
2172: B5 C0                   LDA  DOPOF,X
2174: 29 07                   AND  #7
2176: F0 BE                   BEQ  ENDMV       ;DON'T MV AGAIN IF IN CC.
2178: C6 F5                   DEC  TEMP7
217A: 30 BA                   BMI  ENDMV
217C: A9 02                   LDA  #2
217E: 25 D9                   AND  RANDOM
2180: F0 EB                   BEQ  KML2        ;MV AGAIN.
2182: D0 B2                   BNE  ENDMV
                                               ;
                     *  MOVE HIM RIGHT-->
                     ********************************
                     KMRT
2184: B4 C7                   LDY  DIGSPD-1,X
2186: B9 95 2F                LDA  SPDTBL,Y
2189: 29 08                   AND  #8
218B: 4A                      LSR
218C: 4A                      LSR
218D: 4A                      LSR
218E: 85 F5                   STA  TEMP7       ;RT. SPD.
                     KMRT2
2190: 20 3D 2C                JSR  MRIGHT      ;MOVE HIM RIGHT.
                                               ;USED T1,T2,T3,T4.
2193: B0 2B                   BCS  ABORT       ;J CAN'T MV.
2195: B5 C0                   LDA  DOPOF,X
2197: 29 07                   AND  #7
2199: F0 0A                   BEQ  EMV         ;DON'T MV AGAIN IF IN CC.
                                               ;
219B: C6 F5                   DEC  TEMP7
219D: 30 06                   BMI  EMV
219F: A9 02                   LDA  #2
21A1: 25 D9                   AND  RANDOM
21A3: F0 EB                   BEQ  KMRT2       ;MV AGAIN
                     EMV
21A5: 4C 3C 23                JMP  ENDBOT
```

```
                  ********************************
                  * DIGGER IS BOTH ON A COL + IN A BAND.
                  * (IF DIGIQ = NZ TRY TO KP GOING)
                  ********************************
                  NEWMOV
21A8: A9 03                LDA  #3
21AA: 85 F3                STA  TEMP5        ;INIT # DIR TO TRY.
                                             ;
21AC: B5 CB                LDA  DIGIQ-1,X
21AE: F0 33                BEQ  NEWDIR
21B0: D6 CB                DEC  DIGIQ-1,X
                                             ;
                  * IF H/V POS=DO H/V POS THEN ABANDON CCELL RULE.
                  ********************************
21B2: A5 BD                LDA  DOBAND
21B4: 29 70                AND  #$70
21B6: D5 BD                CMP  DOBAND,X
21B8: F0 06                BEQ  ABORT
                                             ;
21BA: A5 C0                LDA  DOPOF
21BC: D5 C0                CMP  DOPOF,X
21BE: D0 07                BNE  SAME1
                                             ;
                  ABORT
21C0: A9 00                LDA  #0           ;
21C2: 95 CB                STA  DIGIQ-1,X
21C4: 4C E3 21             JMP  NEWDIR
                                             ;
```

```
                 *   TRY TO CONTINUE IN SAME DIR->
                 ******************************
                 SAME1
21C7: B5 C5                   LDA   DIGDIR-1,X
21C9: 29 03                   AND   #3
21CB: C9 00                   CMP   #UPD
21CD: D0 03                   BNE   NM1
                                                ;RANDOM 2ND TRY AFT UP.
21CF: 4C 23 22                JMP   RNDUP
                 NM1
21D2: C9 01                   CMP   #DOWND
21D4: D0 03                   BNE   NM2
                                                ;RANDOM 2ND TRY AFT DOWN.
21D6: 4C F1 21                JMP   RNDDWN
                 NM2
21D9: C9 03                   CMP   #LEFTD
21DB: D0 03                   BNE   NM3
                                                ;RANDOM 2ND TRY AFT LEFT.
21DD: 4C 4F 22                JMP   RNDLFT
                 NM3
                                                ;RND 2ND TRY AFT RIGHT.
21E0: 4C 35 22                JMP   RNDRT
                                                ;
```

```
                * FIGURE WHICH DIR TBL TO USE-->
                *******************************
                NEWDIR
21E3: A5 BD             LDA  DOBAND
21E5: 29 70             AND  #$70         ;KP BAND.
21E7: D5 BD             CMP  DOBAND,X
21E9: B0 30             BCS  DIR25        ;JP MR DO ABOVE OR EQ TO DIG.
                                          ;
                *******************************
                *  MR DO IS BELOW THIS DIGGER-->
                *******************************
21EB: A5 C0             LDA  DOPOF
21ED: D5 C0             CMP  DOPOF,X
21EF: D0 10             BNE  BELOW1
                                          ;RANDOM HOR TRY AFT VERT.
                RNDDWN
21F1: A0 12             LDY  #DLRU-DIRTBL
21F3: A9 10             LDA  #$10
21F5: 25 D9             AND  RANDOM
21F7: D0 03             BNE  BELOW0
21F9: 4C 63 22          JMP  HAVDIR
                BELOW0
                                          ;DRLU.
21FC: A0 0C             LDY  #DRLU-DIRTBL
21FE: 4C 63 22          JMP  HAVDIR
                BELOW1
2201: 90 0C             BCC  BLOL         ;JP MR DO IS TO LEFT.
                                          ;
                * MR DO IS BELOW TO RIGHT->
                *******************************
2203: A0 0C             LDY  #DRLU-DIRTBL
2205: 20 F7 22          JSR  HORV         ;WHICH DISTANCE IS GREATER?
                                          ;H-V=
2208: B0 59             BCS  HAVDIR       ;CHOOSE SHORTEST DISTANCE.
220A: A0 08             LDY  #RDUL-DIRTBL
220C: 4C 63 22          JMP  HAVDIR       ;JP IF ON SAME BAND.
```

```
                 * MR DO IS BELOW TO LEFT->
                 ********************************
                 BLOL
220F: A0 12                 LDY  #DLRU-DIRTBL
2211: 20 F7 22              JSR  HORV        ;H-V=
                                             ;USED T7,T8.
2214: B0 4D                 BCS  HAVDIR      ;CHOOSE SHORTEST DISTANCE.
2216: A0 02                 LDY  #LDUR-DIRTBL
2218: 4C 63 22              JMP  HAVDIR
                                             ;
                 ********************************
                 * MR DO IS ABOVE OR EQ TO DIG->
                 ********************************
                 DIR25
221B: 08                    PHP              ;SV BAND CMP STAT.
221C: A5 C0                 LDA  DOPOF
221E: D5 C0                 CMP  DOPOF,X
2220: D0 0E                 BNE  ABOVE1
                                             ;
                 *  SAME POS---FORCE VERT MOVE->
                 ********************************
2222: 28                    PLP              ;FIX SP
                                             ;RANDOM HOR TRY AFT VERT->
                 RNDUP
2223: A0 06                 LDY  #ULRD-DIRTBL
2225: A9 08                 LDA  #8
2227: 25 D9                 AND  RANDOM
2229: D0 02                 BNE  ABOVE0
                                             ;URLD.
222B: A0 00                 LDY  #URLD-DIRTBL
                 ABOVE0
222D: 4C 63 22              JMP  HAVDIR
                 ABOVE1
2230: 90 1A                 BCC  ABVL        ;JP MR DO IS TO LEFT.
                 * MR DO IS ABOVE TO RIGHT->
                 ********************************
2232: 28                    PLP
2233: D0 0B                 BNE  ABOVE3      ;J N ON SAME BANDS.
                                             ;RANDOM VERT AFT HOR->
                 RNDRT
2235: A0 08                 LDY  #RDUL-DIRTBL
2237: A9 04                 LDA  #4
2239: 25 D9                 AND  RANDOM
223B: D0 0A                 BNE  ABOVE2
223D: 4C 63 22              JMP  HAVDIR
                 ABOVE3
2240: A0 00                 LDY  #URLD-DIRTBL
2242: 20 F7 22              JSR  HORV        ;H-V=
                                             ;USED T7,T8.
2245: B0 1C                 BCS  HAVDIR      ;CHOOSE SHORTEST DIR.
                 ABOVE2
                                             ;RUDL
2247: A0 14                 LDY  #RUDL-DIRTBL
2249: 4C 63 22              JMP  HAVDIR
                                             ;
                 * MR DO IS ABOVE TO LEFT->
                 ********************************
                 ABVL
224C: 28                    PLP
224D: D0 0B                 BNE  ABOVE6      ;J N ON SAME BANDS.
                                             ;RANDOM VERT AFT TRY HORIZ->
                 RNDLFT
224F: A9 10                 LDA  #$10
2251: 25 D9                 AND  RANDOM
2253: D0 0C                 BNE  ABOVE7
```

```
2255: A0 02                  LDY  #LDUR-DIRTBL
2257: 4C 63 22               JMP  HAVDIR
                                                ;
                                                ;
                    ABOVE6
225A: A0 06                  LDY  #ULRD-DIRTBL
225C: 20 F7 22               JSR  HORV          ;H-V=
                                                ;USED T7,T8.
225F: B0 02                  BCS  HAVDIR        ;CHOOSE SHORTEST DISTANCE.
                    ABOVE7
                                                ;LUDR
2261: A0 0E                  LDY  #LUDR-DIRTBL
                                                ;
                    HAVDIR
2263: 84 F4                  STY  TEMP6         ;SV PTR TO DIRTBL.
2265: 4C CD 22               JMP  SEARCH        ;START SEARCH.
```

```
                 ********************************
                 *  TRY TO MOVE BADGUY RIGHT-->
                 ********************************
                 MDRT
2268: B5 C0                LDA  DOPOF,X
226A: 18                   CLC
226B: 69 08                ADC  #8           ;TEST POS+8.
226D: A8                   TAY
226E: B5 BD                LDA  DOBAND,X
2270: 20 79 2D             JSR  CCTST        ;SEE IF FIELD ON THERE.
                                             ;USED T1-T4.
2273: F0 03                BEQ  MDRT2
2275: 4C C7 22             JMP  NOGOOD       ;JP IF ON.
                 MDRT2
2278: 20 3D 2C             JSR  MRIGHT       ;TRY RT.
                                             ;USED T1-T3.
227B: 90 03                BCC  MDRT4        ;JP IF COULD GO LEFT.
227D: 4C C7 22             JMP  NOGOOD
                 MDRT4
2280: A9 02                LDA  #RIGHTD      ;NEW DIR.
2282: 4C E4 22             JMP  DIDMOV
                                             ;
```

```
                         *******************************
                         *  TRY TO MOVE BADGUY LEFT-->
                         *******************************
                         MDLT
2285: B5 BD                       LDA  DOBAND,X
2287: B4 C0                       LDY  DOPOF,X
2289: F0 3C                       BEQ  NOGOOD      ;JP IF AT EDGE.
228B: 88                          DEY              ;POS-1.
228C: 20 79 2D                    JSR  CCTST       ;FLD ON?
                                                   ;USED T1-T4.
228F: D0 36                       BNE  NOGOOD      ;JP YES(NOT MOWED).
2291: 20 A6 2C                    JSR  MLEFT       ;TRY LT.
                                                   ;USED T1-T4.
2294: B0 31                       BCS  NOGOOD
2296: A9 03                       LDA  #LEFTD      ;NEW DIR.
2298: 4C E4 22                    JMP  DIDMOV
                                                   ;
```

```
                    *****************************
                    *  TRY TO MOVE BADGUY DOWN-->
                    *****************************
                    MDDN
229B: B5 BD                     LDA  DOBAND,X
229D: B4 C0                     LDY  DOPOF,X
                                               ;TEST IF FLD MOWED BELOW DIG->
229F: 38                        SEC
22A0: E9 10                     SBC  #$10      ;BAND-1.
22A2: 20 79 2D                  JSR  CCTST
                                               ;USED T1-T4.
22A5: D0 20                     BNE  NOGOOD
                                               ;
22A7: 20 AF 2B                  JSR  MDOWN     ;TRY DN.
                                               ;USED T1.
22AA: B0 1B                     BCS  NOGOOD
22AC: A9 01                     LDA  #DOWND    ;NEW DIR.
22AE: 4C E4 22                  JMP  DIDMOV
```

```
                *******************************
                *  TRY TO MOVE BADGUY UP-->
                *******************************
                MDUP
22B1: B5 BD               LDA  DOBAND,X
22B3: B4 C0               LDY  DOPOF,X
22B5: 18                  CLC
22B6: 69 10               ADC  #$10        ;BAND+1.
22B8: 20 79 2D            JSR  CCTST       ;MOWED?
                                           ;USED T1-T4.
22BB: D0 0A               BNE  NOGOOD      ;JP NO.
                                           ;
22BD: 20 F7 2B            JSR  MUP         ;TRY TO MOVE UP.
                                           ;USED T1.
22C0: B0 05               BCS  NOGOOD
                                           ;
22C2: A9 00               LDA  #UPD        ;NEW DIR.
22C4: 4C E4 22            JMP  DIDMOV
```

```
                 *****************************
                 * LAST MOVE TRIED WAS NOT LEGAL.
                 *  TRY SOMETHING ELSE-->
                 *****************************
                 NOGOOD
22C7: C6 F3                 DEC   TEMP5
22C9: 30 29                 BMI   NG99        ;JP IF TRIED ALL 4 DIRECTIONS.
22CB: E6 F4                 INC   TEMP6       ;UP DIRTBL IDX.
                 SEARCH
22CD: A4 F4                 LDY   TEMP6       ;GET DIR-TO-TRY-NEXT IDX.
22CF: B9 24 23              LDA   DIRTBL,Y
22D2: C9 00                 CMP   #UPD
22D4: F0 DB                 BEQ   MDUP        ;JP IF UP.
22D6: C9 01                 CMP   #DOWND
22D8: F0 C1                 BEQ   MDDN        ;JP IF DOWN.
22DA: C9 03                 CMP   #LEFTD
22DC: F0 03                 BEQ   MDLTJP      JP IF LEFT.
22DE: 4C 68 22              JMP   MDRT        ;ELSE MUST BE RIGHT.
                 MDLTJP
22E1: 4C 85 22              JMP   MDLT
                                              ;
                 *  THE NEW MOVE HAS BEEN MADE
                 *****************************
                 DIDMOV
22E4: 95 C5                 STA   DIGDIR-1,X ;SV NEW DIR.
22E6: A5 F3                 LDA   TEMP5
22E8: C9 03                 CMP   #3          ;WAS IT FIRST TRY?
22EA: F0 08                 BEQ   NG99        ;J Y.
22EC: A5 D9                 LDA   RANDOM
22EE: 29 0F                 AND   #$0F
22F0: 69 01                 ADC   #1          ;MAKE NZ.
22F2: 95 CB                 STA   DIGIQ-1,X   ;REINIT IQ.
                 NG99
22F4: 4C 3C 23              JMP   ENDBOT      ;JP DONE ALL BADGUYS/DIGGERS.
                                              ;
```

```
                   * WHICH DISTANCE IS GREATER H/V?
                   ********************************
                   HORV
22F7: A5 BD                 LDA   DOBAND
22F9: 29 70                 AND   #$70
22FB: 38                    SEC
22FC: F5 BD                 SBC   DOBAND,X
22FE: 10 05                 BPL   NOBOR        ;J PLUS RESULT.
2300: 49 FF                 EOR   #$FF         ;MAKE PLUS.
2302: 18                    CLC
2303: 69 01                 ADC   #1
                   NOBOR
2305: 4A                    LSR
2306: 4A                    LSR
2307: 4A                    LSR
2308: 4A                    LSR
2309: 85 F5                 STA   TEMP7        ;SV V DIF.
                                               ;
230B: A5 C0                 LDA   DOPOF
230D: 4A                    LSR
230E: 4A                    LSR
230F: 4A                    LSR                ; /8.
2310: 85 F6                 STA   TEMP8
2312: B5 C0                 LDA   DOPOF,X
2314: 4A                    LSR
2315: 4A                    LSR
2316: 4A                    LSR                ; /8.
2317: 38                    SEC
2318: E5 F6                 SBC   TEMP8        ;DIGPOF-DOPOF.
231A: 10 05                 BPL   NOBOR2
231C: 49 FF                 EOR   #$FF
231E: 18                    CLC
231F: 69 01                 ADC   #1
                   NOBOR2
2321: C5 F5                 CMP   TEMP7
2323: 60                    RTS
                                               ;
                   * NEXT DIRECTION TO TRY TABLE-->
                   ********************************
                   DIRTBL
                   URLD
2324: 00 02                 DFB   UPD,RIGHTD
                   LDUR
2326: 03 01 00
2329: 02                    DFB   LEFTD,DOWND,UPD,RIGHTD
                   ULRD
232A: 00 03                 DFB   UPD,LEFTD
                   RDUL
232C: 02 01 00
232F: 03                    DFB   RIGHTD,DOWND,UPD,LEFTD
                   DRLU
2330: 01 02                 DFB   DOWND,RIGHTD
                   LUDR
2332: 03 00 01
2335: 02                    DFB   LEFTD,UPD,DOWND,RIGHTD
                   DLRU
2336: 01 03                 DFB   DOWND,LEFTD
                   RUDL
2338: 02 00 01
233B: 03                    DFB   RIGHTD,UPD,DOWND,LEFTD
                   ENDBOT
```

```
                  *******************************
                  * APPLE CONTROL CODE          *
                  *******************************
                                PUT  MR.DO.APPLE
                  */ MR.DO.APPLE LASTED 8/3/83.
                                                  ;
                  *  APPLE FALLING TEST-->
                  *******************************
                  APPLE
233C: A5 8D                     LDA  APFALL
233E: 10 3B                     BPL  FALLMON      ;JP IF AN APPLE IS FALLING.
2340: A5 84                     LDA  FRAMEL       ;TEST IF 1 CAN FALL.
2342: 29 03                     AND  #3
2344: AA                        TAX               ;ONLY TEST 1 PER FRAME.
2345: B5 D0                     LDA  APBAND,X
2347: 30 1B                     BMI  NF9          ;JP APPLE NOT ON.
2349: 29 70                     AND  #$70
234B: F0 17                     BEQ  NF9          ;JP SITTING IN BOTTOM BAND.
                  * TEST IF FIELD ON UNDER APPLE->
                  *******************************
234D: B5 D4                     LDA  APPOF,X
234F: 29 07                     AND  #7           ;ON COLUMN?
2351: C9 04                     CMP  #4           ;SHOULD WE LOOK IN COLUMN TO RT.
2353: B5 D4                     LDA  APPOF,X
2355: 90 02                     BCC  NF5          ;JP NO.
2357: 69 07                     ADC  #7
                  NF5
2359: A8                        TAY               ;Y=POS TO CHK.
235A: B5 D0                     LDA  APBAND,X
235C: 38                        SEC
235D: E9 10                     SBC  #$10         ;BAND-1.
235F: 20 89 2D                  JSR  CCTEST
2362: F0 03                     BEQ  STFALL       ;JP FLD OFF.
                  NF9
2364: 4C D7 24                  JMP  FALL99       ;JP CAN'T FALL.
                                                  ;
                  * START APPLE FALLING-->
                  *******************************
                  STFALL
2367: 8A                        TXA               ;GET WHICH APPLE.
2368: 0A                        ASL
2369: 0A                        ASL
236A: 0A                        ASL
236B: 0A                        ASL
236C: 09 0F                     ORA  #$0F         ;SET TIMER.
236E: 85 8D                     STA  APFALL
                                                  ;START ROCKING IMG->
2370: B5 D0                     LDA  APBAND,X
2372: 29 F0                     AND  #$F0
2374: 09 01                     ORA  #1           ;IMG IDX = 1.
2376: 95 D0                     STA  APBAND,X
2378: 4C D7 24                  JMP  FALL99
```

```
                * AN APPLE IS ALREADY FALLING-->
                ********************************
                FALLMON
237B: 4A                LSR
237C: 4A                LSR
237D: 4A                LSR
237E: 4A                LSR
237F: AA                TAX               ;X=WHICH AP IS FALLING.
2380: C6 8D             DEC   APFALL      ;DEC TIMER.
                                          ;IS TIME UP?
2382: A5 8D             LDA   APFALL
2384: 29 0F             AND   #$0F
2386: F0 03             BEQ   F03         ;JP TIME IS UP.
2388: 4C D7 24          JMP   FALL99
                ********************************
                * APPLE STAGE TIMER IS UP.
                *  DECIDE TO KP FALLING, BREAK, OR SIT->
                ********************************
                F03
238B: B5 D0             LDA   APBAND,X
238D: 29 0F             AND   #$0F        ;GET IMG IDX.
238F: C9 01             CMP   #1
2391: D0 05             BNE   F44
                                          ;START ROCK2 IMG->
2393: F6 D0             INC   APBAND,X    ;IMG IDX=2.
2395: 4C 59 24          JMP   SETTIM
                F44
2398: C9 02             CMP   #2
239A: D0 15             BNE   F55         ;JP NOT 2ND ROCK STAGE.
239C: F6 D0             INC   APBAND,X    ;IMG IDX=3 (FALLING APPLE).
                                          ;MOVE APPLE TO NEAREST COLUMN->
239E: B5 D4             LDA   APPOF,X
23A0: 29 07             AND   #7
23A2: C9 04             CMP   #4
23A4: B5 D4             LDA   APPOF,X
23A6: 90 02             BCC   F47         ;JP NO ADJUST RIGHT NEEDED.
23A8: 69 07             ADC   #7
                F47
23AA: 29 F8             AND   #$F8        ;RMV LO 3 BITS.
23AC: 95 D4             STA   APPOF,X
23AE: 4C 59 24          JMP   SETTIM
                F55
23B1: C9 03             CMP   #3          ;FALLING DOWN?
23B3: F0 18             BEQ   MIDAIR      ;JP YES.
23B5: C9 04             CMP   #4          ;BREAKING STAGE 1?
23B7: F0 0F             BEQ   F57         ;J Y.
                                          ;
                * MUST BE DONE W/LAST BRK STAGE->
                ********************************
                APRMV
23B9: A9 80             LDA   #$80
23BB: 95 D0             STA   APBAND,X    ;APPLE OFF.
23BD: 85 8D             STA   APFALL      ;NO AP FALLING NOW.
23BF: A9 1F             LDA   #$1F
23C1: 25 8E             AND   ANIM8       ;CLR DRAG BITS.
23C3: 85 8E             STA   ANIM8
23C5: 4C D7 24          JMP   FALL99
                F57
23C8: F6 D0             INC   APBAND,X    ;IMG IDX=4 =BRKING STAGE 2.
23CA: 4C 59 24          JMP   SETTIM
                                          ;
```

```
                                         ;
                * KEEP MOVING APPLE DOWN IF NO FIELD(OR NOT ALREADY AT BOTTOM).
                ****************************************************************
                MIDAIR
23CD: B5 D0              LDA   APBAND,X
23CF: 29 70              AND   #$70
23D1: D0 03              BNE   MID5
23D3: 4C 62 24           JMP   SITBRK      ;J AT BOTTOM.
                MID5
23D6: B5 D0              LDA   APBAND,X
23D8: 38                 SEC
23D9: E9 10              SBC   #$10        ;BAND-1.
23DB: B4 D4              LDY   APPOF,X
23DD: 20 89 2D           JSR   CCTEST      ;FLD ON BELOW?
23E0: F0 03              BEQ   MID15       ;JP FLD IS OFF.
23E2: 4C 62 24           JMP   SITBRK      ;FLD IS ON.
                *  MOVE APPLE DOWN (FLD IS OFF)
                ********************************
                MID15
23E5: 95 D0              STA   APBAND,X    ;SV NEW BAND NUM.
23E7: 29 70              AND   #$70        ;KPBAND.
23E9: 85 F0              STA   TEMP2
23EB: A9 0A              LDA   #$0A        ;SET UP FALL/FRAME TIMER.
23ED: 05 8D              ORA   APFALL
23EF: 85 8D              STA   APFALL
                                         ;
                * TEST IF MR DO  OR DIGS HIT BY APPLE->
                ********************************
23F1: A0 02              LDY   #2
                DRAGT
23F3: B9 CA 24           LDA   DMASK,Y
23F6: 25 8E              AND   ANIM8       ;MR DO ALREADY HIT BY APPLE?
23F8: F0 10              BEQ   NYET        ;J N.
                                         ;
                *MR DO/DIG BEING DRAGGED, MOVE HIM DOWN-->
                ****************************************
23FA: B9 BD 00           LDA   DOBAND,Y
23FD: 30 54              BMI   NXTTST      ;JP OFF
23FF: 38                 SEC
2400: E9 10              SBC   #$10        ;BAND-1
2402: 29 F0              AND   #$F0        ;LN=0
2404: 99 BD 00           STA   DOBAND,Y
2407: 4C 53 24           JMP   NXTTST
                                         ;
```

```
                  * SHOULD MR DO/DIG BE DRAGGED?-->
                  *****************************
                  NYET
                                                   ;TEST HORIZ->
240A: B9 C0 00               LDA  DOPOF,Y
240D: D5 D4                  CMP  APPOF,X
240F: F0 16                  BEQ  VTEST            ;J SAME POS.
2411: 90 0E                  BCC  APRITE           ;JP DOPOS<APPOS.
                                                   ;DOPOS>APPOS.
2413: E9 07                  SBC  #7
2415: 10 02                  BPL  APLEFT           ;J NO WRAP.
2417: A9 00                  LDA  #0               ;DON'T LET WRAP.
                  APLEFT
2419: D5 D4                  CMP  APPOF,X
241B: F0 0A                  BEQ  VTEST            ;J SAME.
241D: B0 34                  BCS  NXTTST           ;J NO HIT
241F: 90 06                  BCC  VTEST
                  APRITE
2421: 69 07                  ADC  #7
2423: D5 D4                  CMP  APPOF,X
2425: 90 2C                  BCC  NXTTST           ;J NO HIT.
                                                   ;TEST VERT->
                  VTEST
2427: B9 BD 00               LDA  DOBAND,Y
242A: 30 27                  BMI  NXTTST           ;J OFF.
242C: 29 70                  AND  #$70             ;KP BAND.
242E: 38                     SEC
242F: E5 F0                  SBC  TEMP2            ;AP BAND.
2431: F0 19                  BEQ  DRAGIT
2433: C9 10                  CMP  #$10             ;IS DO/DIG 1 ABOVE?
2435: D0 1C                  BNE  NXTTST           ;J N.
                                                   ;DROP HIM A BAND.
2437: B9 BD 00               LDA  DOBAND,Y
243A: 29 0F                  AND  #$0F             ;LN=0?
243C: D0 03                  BNE  DRAGEM           ;J N.
243E: 98                     TYA
243F: F0 12                  BEQ  NXTTST           ;J MR DO.
                                                   ;
                  DRAGEM
2441: B9 BD 00               LDA  DOBAND,Y
2444: 38                     SEC
2445: E9 10                  SBC  #$10
2447: 29 F0                  AND  #$F0             ;LN=0
2449: 99 BD 00               STA  DOBAND,Y
                                                   ;NOW DRAG HIM->
                  *  START DRAGGING MR DO OR DIG-->
                  *******************************
                  DRAGIT
244C: B9 CA 24               LDA  DMASK,Y
244F: 05 8E                  ORA  ANIM8            ;SET BEING DRAGGED BIT.
2451: 85 8E                  STA  ANIM8
                                                   ;
                  NXTTST
2453: 88                     DEY
2454: 10 9D                  BPL  DRAGT            ;TEST ALL 3.
2456: 4C D7 24               JMP  FALL99
                                                   ;
```

```
                 >215  SETTIM
2459: A9 0F      >216        LDA  #$0F       ;SET UP 15 FRAME TIMER.
245B: 05 8D      >217        ORA  APFALL
245D: 85 8D      >218        STA  APFALL     ;SET TIMER.
245F: 4C D7 24   >219        JMP  FALL99     ;KP FALLING IF FLD IS NOT ON.
```

```
                                    ;
              * APPLE CAN NOT FALL ANY FURTHER.
              * TEST IF APPLE HAS FALLEN MORE
              * THAN 1 BAND FROM ORGIN-->
              * ALSO RMV ANYONE DRAGGED DOWN.*
              ********************************
              SITBRK
2462: A5 8E             LDA  ANIM8      ;GET DRAG FLAGS.
2464: 29 E0             AND  #$E0       ;ANY DRAGS?
2466: F0 3B             BEQ  SB25       ;J N DRAGS.
                                        ;
2468: A9 40             LDA  #$40
246A: 25 8E             AND  ANIM8
246C: F0 0A             BEQ  SB7        ;J DIG 1 NOT DRAGGED.
246E: A9 81             LDA  #$81
2470: 85 BE             STA  DIGBAND    ;DIG 1 OFF.
              ********************************
              *REV VIDEO LETTER IF ALF MNSTR *
              ********************************
2472: 20 82 2B          JSR  REVVID
2475: 20 CD 24          JSR  ADD1K      ;1000 PTS.
              SB7
2478: A9 20             LDA  #$20
247A: 25 8E             AND  ANIM8
247C: F0 07             BEQ  SB70       ;J DIG2 NOT DRAGGED.
247E: A0 81             LDY  #$81
2480: 84 BF             STY  DIGBAND+1  ;DIG2 OFF.
2482: 20 CD 24          JSR  ADD1K      ;1000 PTS.
              SB70
2485: A5 8E             LDA  ANIM8
2487: 10 17             BPL  SB88       ;J MR DO NOT DRAGGED.
                                        ;
2489: A9 81             LDA  #$81
248B: 85 BD             STA  DOBAND     ;DO OFF
248D: A9 20             LDA  #DODEAD
248F: 85 DA             STA  MODE
2491: A9 00             LDA  #0
2493: 85 84             STA  FRAMEL
2495: A9 FF             LDA  #$FF
2497: 85 BA             STA  MSBAND     ;BALL NOT AVAIL.
2499: A9 04             LDA  #4
249B: 85 BC             STA  MISDIR     ;BRIEF DELAY.
                                        ;
              * ADD BACK ANY DIGGERS NOT DEAD->
              ********************************
249D: 20 98 20          JSR  INCINV
              SB88
24A0: 4C BC 24          JMP  BRKIT      ;BRK APPLE-IT HIT SOMEONE.
              SB25
24A3: B5 D0             LDA  APBAND,X   ;GET BAND.
24A5: 29 70             AND  #$70       ;KP BAND.
24A7: 38                SEC
24A8: FD C6 24          SBC  ORGTBL,X   ;SUB BAND NUM IT STARTED ON.
24AB: C9 F0             CMP  #$F0
24AD: D0 0D             BNE  BRKIT      ;JP IF FELL MORE THAN 1.
                                        ;LET APPLE SIT->
24AF: A9 80             LDA  #$80
24B1: 85 8D             STA  APFALL     ;APPLE DONE FALLING.
24B3: B5 D0             LDA  APBAND,X
24B5: 29 F0             AND  #$F0
24B7: 95 D0             STA  APBAND,X   ;IMG IDX=0.
24B9: 4C D7 24          JMP  FALL99
              * START BREAKING ANIMATION->
              ********************************
              BRKIT
```

```
24BC: F6 D0              INC  APBAND,X    ;IMG IDX=4 (BRK STAGE 1).
                                          ;MAKE BREAKING SOUND->
24BE: A9 00              LDA  #DEADSND
24C0: 20 41 2D           JSR  HISND       ;HI PRIORITY SND.
                                          ;X DESTROYED.
24C3: 4C 59 24           JMP  SETTIM
               ********************************
               * APPLE BAND ORGIN TABLE->
               ORGTBL
               ********************************
24C6: 70 50 30
24C9: 10                 DFB  $70,$50,$30,$10
                                          ;
               * MASKS FOR BEING DRAGGED(ANIM8)
               ********************************
               DMASK
24CA: 80 40 20           DFB  $80,$40,$20 ;MR.DO,DIG1,DIG2.
               ADD1K
24CD: A9 50              LDA  #$50
24CF: 20 23 2B           JSR  ADDPTS
24D2: A9 50              LDA  #$50
24D4: 4C 23 2B           JMP  ADDPTS      ;J THEN RET TO CALLER OF THIS RTN.
                                          ;
               FALL99
```

```
                    ********************************
                    * VERTICAL RETRACE CODE        *
                    ********************************
                             PUT  MR.DO.VINT
                    */MR.DO.VINT LASTED: 9/14/83
                    *
                    ********************************
                    *      VERTICAL  RETRACE       *
                    ********************************
                    * WAIT FOR END OF BOTVI-->
                    ********************************
                    THEEND
                    ENDTIM
24D7: AD 84 02               LDA  TIMER
24DA: 30 FB                  BMI  ENDTIM
                                            ;
24DC: A9 B3                  LDA  #TOPTIM
24DE: 85 02                  STA  ATWAIT    ;VINT WAIT #1
24E0: 8D 96 02               STA  TIME64    ;START VINT TIMER.
                                            ;UP FRAME COUNTER->
24E3: E6 84                  INC  FRAMEL
24E5: D0 1F                  BNE  ALF99     ;JP NO OV.
24E7: E6 85                  INC  FRAMEH
                                            ;
                    *  ADVANCE CHANNEL SELECT-->
                    ********************************
24E9: A9 02                  LDA  #2
24EB: 25 8E                  AND  ANIM8     ;ALF MONSTER OUT?
24ED: D0 17                  BNE  ALF99     ;J Y.
24EF: A5 8B                  LDA  ALPHA
24F1: 29 07                  AND  #7
24F3: AA                     TAX
24F4: E8                     INX
24F5: E0 05                  CPX  #5
24F7: D0 02                  BNE  UPALPH    ;JP NO WRAP NEEDED.
24F9: A2 00                  LDX  #0
                    UPALPH
24FB: A9 F8                  LDA  #$FF-7
24FD: 25 8B                  AND  ALPHA
24FF: 85 8B                  STA  ALPHA
2501: 8A                     TXA
2502: 05 8B                  ORA  ALPHA
2504: 85 8B                  STA  ALPHA     ;SV NEW CHANNEL SELECT.
                    ALF99
                                            ;50 CY MAX->
                    * MAINTAIN CHERRY EATING TIMER-->
                    ******************************
2506: A5 84                  LDA  FRAMEL
2508: 29 01                  AND  #1
250A: F0 0C                  BEQ  NOTIM     ;JP NOT TIME TO UPDATE.
250C: A5 8C                  LDA  CHERRYT
250E: 29 1F                  AND  #$1F
2510: D0 04                  BNE  EATS      ;JP TIME NOT EXPIRED.
2512: 85 8C                  STA  CHERRYT   ;START NOTE PTR OVER.
2514: F0 02                  BEQ  NOTIM
                    EATS
2516: C6 8C                  DEC  CHERRYT   ;DEC TIMER FOR EATING.
                    NOTIM
```

```
                  ********************************
                  *  TURN  GUN  OFF--->           *
                  ********************************
                  WAIT2
2518: A9 02                 LDA  #$02       ;RESET JOY BUTTONS.
251A: 85 02                 STA  ATWAIT     ;VINT WAIT #2.
251C: 85 01                 STA  ATBLNK     ;TURN GUN OFF.
                  *ARE BOTH DIGGERS ON IF POSSIBLE?
                  ********************************
251E: A5 89                 LDA  BDUR
2520: 10 2A                 BPL  WAIT3      ;DON'T CHK IF MUSIC ON.
2522: A5 8A                 LDA  DIGINV     ;ANY DIGS LEFT?
2524: F0 26                 BEQ  WAIT3      ;J N.
                                            ;
2526: A5 84                 LDA  FRAMEL
2528: 29 7F                 AND  #$7F
252A: D0 20                 BNE  WAIT3      ;CHK EV 2 SECS.
252C: A2 00                 LDX  #0
252E: B5 BE                 LDA  DIGBAND,X
2530: 30 05                 BMI  D1ON       ;J DIG1 IS OFF.
2532: E8                    INX
2533: B5 BE                 LDA  DIGBAND,X
2535: 10 15                 BPL  WAIT3      ;J HE'S ON TOO.
                  D1ON
                                            ;TURN HIM ON-->
2537: A9 38                 LDA  #56
2539: 95 C1                 STA  DIGPOF,X
253B: A9 40                 LDA  #$40
253D: 95 BE                 STA  DIGBAND,X
253F: A9 00                 LDA  #0
2541: 95 C4                 STA  DIGDAT,X
2543: B4 C8                 LDY  DIGSPD,X
2545: B9 6D 2F              LDA  DTIME,Y
2548: 95 CA                 STA  DIGTIM,X   ;SET UP TIME TILL DIGGING.
254A: C6 8A                 DEC  DIGINV     ;1 LESS DIG.
```

```
                WAIT3
254C: 85 02                   STA   ATWAIT      ;VINT WAIT #3.
                * HAVE ALL LETTERS BEEN HAD?
                ******************************
254E: A5 DA                   LDA   MODE
2550: C9 10                   CMP   #PLAY
2552: D0 21                   BNE   WAIT4       ;J NOT PLAY MODE.
                                                ;
2554: A9 F8                   LDA   #$F8
2556: 25 8B                   AND   ALPHA
2558: C9 F8                   CMP   #$F8
255A: D0 19                   BNE   WAIT4       ;J NOT ALL HAD.
255C: A9 00                   LDA   #0
255E: 85 8B                   STA   ALPHA       ;CLR REV VIDEO.
                *  GIVE AN EXTRA MR.DO-->
                ******************************
2560: A5 DB                   LDA   DOINV
2562: C9 06                   CMP   #6
2564: F0 02                   BEQ   NOXTRA      ;J HAVE MAX.
2566: E6 DB                   INC   DOINV       ;ADD 1 TO INV.
                NOXTRA
2568: A9 00                   LDA   #0          ;DANCE L TO R.
256A: 85 C0                   STA   DOPOF
                                                ;
                *  SET  EXTRA  MR DO  MODE--->
                ******************************
256C: A9 70                   LDA   #XTRADO     ;SET EXTRA MR DO MODE.
256E: 85 DA                   STA   MODE
                                                ;
2570: A9 00                   LDA   #SONG1
2572: 20 2C 2D                JSR   SONG        ;PLAY SONG
```

```
                WAIT4
2575: 85 02                STA   ATWAIT       ;VINT WAIT #4.
2577: A5 DA                LDA   MODE
2579: C9 40                CMP   #GAMOVR
257B: D0 0B                BNE   W44          ;J NOT GAME OVER MODE.
257D: A5 85                LDA   FRAMEH
257F: F0 66                BEQ   WAIT5
                                              ;
                *  SET  TRACK  MODE-->
                *******************************
                SETTRK
2581: A9 50                LDA   #TRACK
2583: 85 DA                STA   MODE         ;SET TRACK MODE.
2585: 4C E7 25             JMP   WAIT5
                W44
2588: C9 30                CMP   #SELECT
258A: D0 08                BNE   W45
258C: A5 85                LDA   FRAMEH
258E: C9 0A                CMP   #10
2590: D0 55                BNE   WAIT5
2592: F0 ED                BEQ   SETTRK       ;SET TRACK MODE->
                W45
2594: C9 20                CMP   #DODEAD
2596: D0 4F                BNE   WAIT5
                                              ;
                *  SEE IF MR.DO IS ON-->
                *******************************
2598: A5 84                LDA   FRAMEL
259A: C9 80                CMP   #$80
259C: F0 1A                BEQ   W47          ;J TO TURN ON MR DO.
                                              ;
259E: C9 40                CMP   #$40
25A0: D0 45                BNE   WAIT5
                                              ;
25A2: A9 FF                LDA   #$FF
25A4: 85 BD                STA   DOBAND       ;DO OFF.
25A6: 85 BE                STA   DIGBAND
25A8: 85 BF                STA   DIGBAND+1
25AA: 85 BA                STA   MSBAND       ;PWRBALL NOT ON YET.
25AC: A9 00                LDA   #0
25AE: 85 C4                STA   DIGDAT
25B0: 85 C5                STA   DIGDAT+1
25B2: 85 8E                STA   ANIM8        ;CLR DRAG BITS.
25B4: 85 BC                STA   MISDIR       ;SHORT DELAY.
25B6: F0 2F                BEQ   WAIT5
                                              ;
                W47
25B8: A5 DB                LDA   DOINV
25BA: D0 1B                BNE   W46          ;J SOME LEFT.
                                              ;
                *  GAME  IS  OVER!!!
                *******************************
                GOVER
25BC: A9 40                LDA   #GAMOVR      ;START GAME OVER MODE.
25BE: 85 DA                STA   MODE
                                              ;
25C0: A9 00                LDA   #0
25C2: 85 84                STA   FRAMEL
25C4: 85 85                STA   FRAMEH       ;4 SEC GAME OVER SCREEN.
                                              ;GAME OVER SONG->
25C6: A9 31                LDA   #SONG2
25C8: 20 2C 2D             JSR   SONG
                                              ;
25CB: A9 38                LDA   #56
25CD: 85 C0                STA   DOPOF
25CF: A9 FF                LDA   #$FF
```

```
25CF: A9 FF            LDA  #$FF
25D1: 85 BE            STA  DIGBAND    ;DIGS OFF.
25D3: 85 BF            STA  DIGBAND+1
25D5: D0 10            BNE  WAIT5
                                       ;
       *****************************
       *   PUT  MR DO BACK ON SCREEN  *
       *****************************
       W46
25D7: C6 DB            DEC  DOINV      ;1 LESS MR DO.
                                       ;
25D9: A9 10            LDA  #PLAY
25DB: 85 DA            STA  MODE
25DD: A9 38            LDA  #56
25DF: 85 C0            STA  DOPOF
25E1: A9 00            LDA  #0
25E3: 85 BD            STA  DOBAND
25E5: 85 D8            STA  PWRTIM     ;SET PWRTIMER TO 0.
```

```
                  WAIT5
25E7: A9 02                   LDA  #2
25E9: 85 02                   STA  ATWAIT      ;VINT WAIT #5.
25EB: 85 00                   STA  ATSYNC      ;BRING GUN HOME.
25ED: A5 DA                   LDA  MODE
25EF: C9 80                   CMP  #RESUM
25F1: D0 0C                   BNE  WAIT6
25F3: A5 84                   LDA  FRAMEL
25F5: D0 08                   BNE  WAIT6       ;BLACK SCREEN.
25F7: E6 81                   INC  ROUND
25F9: 20 A7 29                JSR  IROUND      ;START PLAY MODE AGAIN.
25FC: 4C 03 26                JMP  WAIT7
                                               ;
```

```
                   WAIT6
25FF: 85 02                  STA   ATWAIT      ;VINT WAIT #6
2601: E6 D9                  INC   RANDOM      ;FREE RUNNING RANDOM #.
                   WAIT7
2603: 85 02                  STA   ATWAIT
                                               ;
2605: A5 DA                  LDA   MODE
2607: C9 70                  CMP   #XTRADO
2609: D0 12                  BNE   NOX         ;J NOT EXTRA MR DO MODE.
                                               ;DANCE R TO L.
260B: A5 84                  LDA   FRAMEL
260D: 29 01                  AND   #1
260F: D0 0C                  BNE   NOX
2611: E6 C0                  INC   DOFOF
2613: 10 08                  BPL   NOX
                                               ;SET RESUME MODE->
2615: A9 80                  LDA   #RESUM
2617: 85 DA                  STA   MODE
2619: A9 E8                  LDA   #$E8        ;SHORT DELAY.
261B: 85 84                  STA   FRAMEL
                   NOX
261D: A9 00                  LDA   #0
261F: 85 02                  STA   ATWAIT
2621: 85 00                  STA   ATSYNC
                                               ;
2623: A9 00                  LDA   #BLACK
2625: 85 09                  STA   ATSCOL      ;BLACK.
                                               ;
```

```
                     *  MANAGE DIGGING TIMERS-->
                     *******************************
                     EV0
2627: A5 DA                    LDA  MODE
2629: C9 10                    CMP  #PLAY
262B: D0 3F                    BNE  EV099
                                                ;
262D: A5 84                    LDA  FRAMEL
262F: 29 7F                    AND  #$7F
2631: D0 39                    BNE  EV099       ;CHK EV 2 SEC.
                                                ;
                     EV0CHK
2633: A2 01                    LDX  #1
                     EV02
2635: B5 BE                    LDA  DIGBAND,X
2637: 30 30                    BMI  EV088       ;J NOT ON
2639: B5 CA                    LDA  DIGTIM,X
263B: 10 1B                    BPL  EV07        ;J NOT DIGGING YET.
                                                ;
263D: 29 0F                    AND  #$0F
263F: D0 26                    BNE  DTIM9       ;J NOT TIME TO TURN BACK TO BADGUY
.
                                                ;
                     * TURN DIGGER BACK TO BADGUY->
                     *******************************
2641: A9 00                    LDA  #0
2643: 95 C4                    STA  DIGDAT,X    ;CHG IMG
2645: B4 C8                    LDY  DIGSPD,X
2647: B9 6D 2F                 LDA  DTIME,Y
264A: 95 CA                    STA  DIGTIM,X    ;SET TIME TO DIG NEXT.
                     EV05
264C: 8A                       TXA
264D: D0 18                    BNE  DTIM9       ;J N DIG1.
                                                ;CLR ALF OUT FLAG->
264F: A9 FD                    LDA  #$FF-2
2651: 25 8E                    AND  ANIM8
2653: 85 8E                    STA  ANIM8
2655: 4C 67 26                 JMP  DTIM9
                     EV07
2658: D0 0D                    BNE  DTIM9       ;J NOT TIME TO DIG.
                     *  TURN BADGUY TO DIGGER->
                     *******************************
265A: A9 02                    LDA  #2
265C: 95 C4                    STA  DIGDAT,X    ;CHG IMG.
265E: B4 C8                    LDY  DIGSPD,X
                                                ;GET HOW LONG TO DIG->
2660: B9 81 2F                 LDA  DDUR,Y
2663: 95 CA                    STA  DIGTIM,X
2665: D0 E5                    BNE  EV05        ;J ALWAYS.
                     DTIM9
2667: D6 CA                    DEC  DIGTIM,X
                     EV088
2669: CA                       DEX
266A: 10 C9                    BPL  EV02        ;DO BOTH.
                                                ;
                     EV099
266C: A5 DA                    LDA  MODE
266E: C9 10                    CMP  #PLAY
2670: D0 42                    BNE  NOCHER
                                                ;
2672: A5 84                    LDA  FRAMEL
2674: 29 01                    AND  #1
2676: AA                       TAX
2677: B5 CA                    LDA  DIGTIM,X
2679: 10 09                    BPL  NOTDIG
```

```
                                ;
                   *  DO DIGGER VS. CHERRY HIT->
                   ********************************
267B: B5 BE                 LDA  DIGBAND,X
267D: 30 05                 BMI  NOTDIG       ;J OFF.
267F: B4 C1                 LDY  DIGPOF,X
2681: 20 7F 2A              JSR  CHIT
                   NOTDIG
                   *  DO MR.DO  VS CHERRY HIT->
                   ********************************
2684: A5 BD                 LDA  DOBAND
2686: 30 2C                 BMI  NOCHER       ;J DO OFF
2688: A4 C0                 LDY  DOPOF
268A: 20 7F 2A              JSR  CHIT         ;MR DO V. CHERRIES.
268D: 90 25                 BCC  NOCHER       ;J NO HIT CHERRY.
                                              ;
                   *  MAKE CHERRY SOUND + ADD PTS->
                   ********************************
268F: A5 8C                 LDA  CHERRYT
                                              ;GET WHICH CHERRY WAS ATE->
2691: 4A                    LSR
2692: 4A                    LSR
2693: 4A                    LSR
2694: 4A                    LSR
2695: 4A                    LSR
2696: AA                    TAX
                                              ;
2697: BD 1D 2B              LDA  CHRPTS,X
269A: 20 23 2B              JSR  ADDPTS
                                              ;
269D: BD 17 2B              LDA  CNOTE,X
26A0: 20 3D 2D              JSR  SOUND        ;PLAY CHERRY SOUND.
                                              ;X DESTROYED.
                                              ;UP CHERRY PTR->
26A3: A5 8C                 LDA  CHERRYT
26A5: 29 E0                 AND  #$E0
26A7: 18                    CLC
26A8: 69 20                 ADC  #$20
26AA: C9 C0                 CMP  #$C0         ;ATE 6 ALREADY?
26AC: D0 02                 BNE  CTIME        ;J N.
26AE: A9 00                 LDA  #0
                   CTIME
26B0: 09 1C                 ORA  #$1C         ;SET TIMER.
26B2: 85 8C                 STA  CHERRYT
                   NOCHER
```

```
                  *******************************
                  * JOYSTICK & SWITCH READING    *
                  *******************************
                          PUT   MR.DO.JOYSTICK
                  */ MR.DO.JOYSTICK LASTED:9/12/83
                  *******************************
                  *   JOYSTICK READ RTN ->       *
                  *******************************
26B4: A5 89               LDA   BDUR
26B6: 30 03               BMI   JOYRD        ;JP NO MUSIC ON.
                  NJOY
26B8: 4C 65 27            JMP   BUTTON       ;SKIP JOY & BUTTON.
                  JOYRD
26BB: A5 DA               LDA   MODE
26BD: C9 10               CMP   #PLAY
26BF: D0 F7               BNE   NJOY
                                             ;
26C1: A5 BD               LDA   DOBAND
26C3: 30 F3               BMI   NJOY
26C5: A5 84               LDA   FRAMEL
26C7: 29 01               AND   #1
26C9: D0 ED               BNE   NJOY         ;ONLY READ EVERY OTHER FRAME.
26CB: A9 80               LDA   #$80
26CD: 25 8E               AND   ANIM8
26CF: D0 E7               BNE   NJOY         ;JP IF DO BEING DRAGGED DOWN.
                                             ;
26D1: A9 01               LDA   #1
26D3: 85 F5               STA   TEMP7        ;INIT TRIES.
                                             ;
26D5: AD 80 02            LDA   JOYDAT       ;GET JOY
26D8: 49 FF               EOR   #$FF
26DA: 85 F7               STA   TEMP9
26DC: A9 10               LDA   #JOYAUP
26DE: 25 F7               AND   TEMP9
26E0: F0 03               BEQ   JOY1         ;JP NOT UP.
26E2: 4C 3C 27            JMP   UP
                  JOY1
26E5: A9 20               LDA   #JOYADN
26E7: 25 F7               AND   TEMP9
26E9: D0 42               BNE   DOWN
26EB: A9 80               LDA   #JOYART
26ED: 25 F7               AND   TEMP9
26EF: D0 2D               BNE   RIGHT
26F1: A9 40               LDA   #JOYALT
26F3: 25 F7               AND   TEMP9
26F5: D0 18               BNE   LEFT
                                             ;
                  *  THERE'S NO JOY, BUT KEEP MR DO
                  * MOVING UNTIL AT A CHAR CELL.
                  *******************************
26F7: A5 BD               LDA   DOBAND
26F9: 29 0F               AND   #$0F
26FB: F0 03               BEQ   CHKHRZ       ;JP IF BETWEEN 2 BANDS.
26FD: 4C 49 27    ILL1    JMP   ILLEG
                  CHKHRZ
2700: A5 C0               LDA   DOFOF
2702: 29 07               AND   #7
2704: D0 F7               BNE   ILL1         ;JP NOT IN A CHAR CELL.
                                             ;STOP ANIMATION.
2706: A9 FE               LDA   #$FE
2708: 25 8E               AND   ANIM8
270A: 85 8E               STA   ANIM8
270C: 4C 65 27            JMP   JOY99
                                             ;
                  *  TRY TO MOVE MR DO LEFT->    *
```

```
                *******************************
                LEFT
270F: A2 00              LDX  #0
2711: 20 A6 2C           JSR  MLEFT
2714: A9 03              LDA  #3          ;LEFT.
2716: 90 4B              BCC  JOY98       ;J LEGAL MV. MADE.
2718: C5 B8              CMP  LASTJY
271A: F0 49              BEQ  JOY99       ;J LAST JY SAME AS 1 JUST TRIED.
271C: D0 2B              BNE  ILLEG
                                          ;
                *   TRY TO MOVE MR DO RIGHT->  *
                *******************************
                RIGHT
271E: A2 00              LDX  #0
2720: 20 3D 2C           JSR  MRIGHT
2723: A9 02              LDA  #2          ;RIGHT.
2725: 90 3C              BCC  JOY98       ;J LEGAL MV MADE.
2727: C5 B8              CMP  LASTJY
2729: F0 3A              BEQ  JOY99       ;J ALREADY TRIED THAT DIR.
                                          ;
272B: D0 1C              BNE  ILLEG
                                          ;
                                          ;
                *  TRY TO MOVE MR DO DOWN->    *
                *******************************
                DOWN
272D: A2 00              LDX  #0
272F: 20 AF 2B           JSR  MDOWN
2732: A9 01              LDA  #1          ;DOWN.
2734: 90 2D              BCC  JOY98       ;J LEGAL MV MADE.
2736: C5 B8              CMP  LASTJY
2738: F0 2B              BEQ  JOY99
273A: D0 0D              BNE  ILLEG
                                          ;
                *  TRY TO MOVE MR. DO UP->      *
                *******************************
                UP
273C: A2 00              LDX  #0
273E: 20 F7 2B           JSR  MUP
2741: A9 00              LDA  #0          ;UP.
2743: 90 1E              BCC  JOY98       ;J LEGAL MV MADE.
2745: C5 B8              CMP  LASTJY
2747: F0 1C              BEQ  JOY99
                                          ;
                                          ;
                * AN ILLEGAL JOY MOVE WAS TRIED.
                * TRY LAST LEGAL DIRECTION--->
                *******************************
                ILLEG
2749: C6 F5              DEC  TEMP7       ;DEC TRIES.
274B: 30 18              BMI  JOY99       ;J ALREADY TRIED LASTJY.
274D: A5 B8              LDA  LASTJY
274F: F0 EB              BEQ  UP          ;UP=0.
2751: C9 01              CMP  #1
2753: F0 D8              BEQ  DOWN        ;DOWN=1.
                                          ;
2755: A5 C0              LDA  DOPOF
2757: 29 07              AND  #7
2759: F0 0A              BEQ  JOY99
                                          ;
275B: A5 B8              LDA  LASTJY
275D: C9 02              CMP  #2
275F: F0 BD              BEQ  RIGHT       ;RIGHT=2
2761: D0 AC              BNE  LEFT        ;LEFT=3.
                JOY98
2763: 85 B8              STA  LASTJY
```

>128 JOY99

```
                    ********************************
                    BUTTON
2765: A5 84                 LDA   FRAMEL
2767: 29 01                 AND   #1
2769: F0 61                 BEQ   NOBUT
                                              ;
276B: A5 3C                 LDA   ATJBA       ;RD JOY BUTTON A.
276D: 30 5D                 BMI   NOBUT       ;JP BUTTON NOT DOWN.
                                              ;IS GAME OVER???
276F: A5 DA                 LDA   MODE
2771: C9 50                 CMP   #TRACK
2773: F0 04                 BEQ   BUT4        ;J TRYING TO START GAME OVER.
2775: C9 30                 CMP   #SELECT
2777: D0 06                 BNE   BUT5
                    BUT4
2779: 20 87 29              JSR   IGAME       ;START GAME OVER.
277C: 4C CC 27              JMP   NOBUT
                                              ;
                    * TRYING TO FIRE POWERBALL-->
                    ********************************
                    BUT5
277F: C9 10                 CMP   #PLAY
2781: D0 49                 BNE   NOBUT       ;J NOT PLAY MODE.
2783: A5 89                 LDA   BDUR
2785: 10 45                 BPL   NOBUT       ;J MUSIC ON.
2787: A5 8E                 LDA   ANIM8       ;BEING DRAGGED?
2789: 30 41                 BMI   NOBUT       ;J Y.
278B: A5 BA                 LDA   MSBAND
278D: 30 3D                 BMI   NOBUT       ;J BALL IS NOT AVAIL.
278F: A5 BC                 LDA   MISDIR
2791: 10 39                 BPL   NOBUT       ;J BALL ALREADY MOVING(SHOT).
                                              ;
                    *  SHOOT PWR BALL->
                    ********************************
2793: A5 C0                 LDA   DOPOF
2795: A6 B8                 LDX   LASTJY      ;GET MR DO DIR.
2797: 18                    CLC
2798: 7D 21 28              ADC   PWROFF,X
279B: 30 2F                 BMI   NOBUT       ;IF AT EDGE,NO PWRBALL.
279D: 85 BB                 STA   MISPOF
                                              ;
279F: BD 1D 28              LDA   PWRLN,X
27A2: 85 B9                 STA   MISLN
                                              ;
                    * SHOOT ONLY IF FLD OFF->
                    ********************************
27A4: E0 00                 CPX   #0
27A6: F0 06                 BEQ   SAM1        ;J IF UP.
27A8: A5 BD                 LDA   DOBAND
27AA: 29 0F                 AND   #$0F
27AC: D0 05                 BNE   BLOW1
                    SAM1
27AE: A5 BD                 LDA   DOBAND
27B0: 4C B8 27              JMP   FTST
                    BLOW1
27B3: A5 BD                 LDA   DOBAND
27B5: 38                    SEC
27B6: E9 10                 SBC   #$10        ;1 LOWER.
                    FTST
27B8: A6 C0                 LDX   DOPOF
27BA: 20 4E 2D              JSR   FMTEST      ;FLD ON?
27BD: D0 0D                 BNE   NOBUT       ;J Y.
27BF: 4A                    LSR
27C0: 4A                    LSR
27C1: 4A                    LSR
```

```
27C2: 4A         >195              LSR
                 >196  SAMEBD
27C3: 85 BA      >197              STA   MSBAND
27C5: A6 B8      >198              LDX   LASTJY
27C7: BD 25 28   >199              LDA   PWRDIR,X
27CA: 85 BC      >200              STA   MISDIR
                 >201  NOBUT
```

```
                   ********************************
                   *  RESET, SELECT & COLOR       *
                   *     SWITCH READING--->       *
                   ********************************
                   SWIT
27CC: AD 82 02               LDA   SWITCH      ;RD SWITCHES.
27CF: 49 FF                  EOR   #$FF
27D1: 29 01                  AND   #SWIRES     ;RESET?
27D3: F0 03                  BEQ   NORES       ;JP NO.
27D5: 20 87 29               JSR   IGAME       ;START GAME OVER
                   NORES
                   * TEST FOR  GAME SELECT SWITCH-->
                   ********************************
27D8: A5 84                  LDA   FRAMEL
27DA: 29 1F                  AND   #$1F
27DC: D0 27                  BNE   NOSEL
                                               ;
27DE: AD 82 02               LDA   SWITCH
27E1: 49 FF                  EOR   #$FF
27E3: 29 02                  AND   #SWISEL     ;JP SELECT NOT DOWN.
27E5: F0 1E                  BEQ   NOSEL
27E7: 85 84                  STA   FRAMEL
27E9: 85 85                  STA   FRAMEH
                                               ;SET SELECT MODE->
27EB: A5 DA                  LDA   MODE
27ED: C9 30                  CMP   #SELECT
27EF: D0 0C                  BNE   SEL2        ;DON'T UP GAME NUM 1ST TIME.
27F1: E6 80                  INC   GAME        ;UP GAME NUM.
27F3: A5 80                  LDA   GAME
27F5: C9 04                  CMP   #4          ;MAX GAME NUM?
27F7: D0 0C                  BNE   NOSEL       ;J NO WRAP.
                                               ;
27F9: A9 00                  LDA   #0
27FB: 85 80                  STA   GAME        ;WRAP.
                   SEL2
27FD: A9 30                  LDA   #SELECT
27FF: 85 DA                  STA   MODE
2801: A9 38                  LDA   #56
2803: 85 C0                  STA   DOPOF
                   NOSEL
2805: A5 81                  LDA   ROUND
2807: 29 0F                  AND   #$0F
2809: A8                     TAY
280A: A2 04                  LDX   #4          ;SAME COL FOR B/W.
280C: AD 82 02               LDA   SWITCH
280F: 49 FF                  EOR   #$FF
2811: 29 08                  AND   #SWICOL
2813: D0 03                  BNE   BLKWHT
2815: BE 29 28               LDX   FLDCOL,Y
                   BLKWHT
2818: 86 8F                  STX   FCOLOR
281A: 4C 39 28               JMP   ENDJOY
```

```
                                    ;
      * STARTING PWRBALL LINENUMS->
      ********************************
      PWRLN
281D: 0E 01 07
2820: 07              DFB  14,1,7,7    ;U,D,R,L
                                    ;
      * PWRBALL STARTING POS OFFSETS FR.MRDO
      ********************************
      PWROFF
2821: 03 03 07
2824: 00              DFB  3,3,7,0     ;UDRL
                                    ;
      * PWRBALL STARTING DIRECTIONS->
      ********************************
      PWRDIR
2825: 02 00 00
2828: 01              DFB  2,0,0,1     ;MRDO DIR=UDRL.
                                       ;PWR DIR=UR,DR,DR,DL.
                                    ;
      * PAL  ORCHARD COLOR TABLE
      ********************************
      FLDCOL
2829: 32 D2 22
282C: 72              DFB  $32,$D2,$22,$72
282D: 04 A2 42
2830: 82              DFB  $04,$A2,$42,$82
2831: 92 52 B4
2834: 62              DFB  $92,$52,$B4,$62
2835: 22 82 52
2838: C4              DFB  $22,$82,$52,$C4
                                    ;
      ENDJOY
                                    ;
```

```
                        ********************************
                        * POWERBALL CONTROL CODE       *
                        ********************************
                                 PUT  MR.DO.PWRBALL
                        */MR.DO.PWRBALL LASTED: 8/2/83
                        ********************************
                        *  POWERBALL MONITOR-->        *
                        ********************************
2839: A5 DA                      LDA  MODE
283B: C9 10                      CMP  #PLAY
283D: D0 0A                      BNE  NOPWR      ;J NOT PLAY MODE.
283F: A5 BA                      LDA  MSBAND
2841: 10 12                      BPL  PWR2       ;J BALL IS ON OR AVAIL
                        ********************************
                        * BALL IS NOT ON YET-->        *
                        ********************************
2843: A5 84                      LDA  FRAMEL
2845: 29 1F                      AND  #$1F       ;CHK EV 1/2 SEC.
2847: F0 03                      BEQ  PWRDEC
                        NOPWR
2849: 4C 84 29                   JMP  PWR99      ;J NOT TIME TO DEC COUNT.
                        PWRDEC
284C: C6 BC                      DEC  MISDIR     ;DEC TIMER.
284E: 10 F9                      BPL  NOPWR      ;J TIME NOT UP.
                        ********************************
                        *  MAKE BALL AVAILIBLE-->
                        ********************************
                        AVAIL
2850: A9 14                      LDA  #BELLS     ;BALL AVAIL SND.
2852: 20 37 2D                   JSR  LOSND      ;LO PRIORITY SND.
                        PWR2
2855: A5 BC                      LDA  MISDIR
2857: 10 31                      BPL  PWRO       ;J BALL MOVING.
                        ********************************
                        *  KEEP BALL IN MR DO'S HAND->
                        ********************************
                                                 ;SET UP VERT POS->
2859: A5 BD                      LDA  DOBAND
285B: 29 0F                      AND  #$0F
285D: AA                         TAX             ;LN.
285E: BD 6F 29                   LDA  PWLN,X
2861: 85 B9                      STA  MISLN
2863: A5 BD                      LDA  DOBAND
2865: 4A                         LSR
2866: 4A                         LSR
2867: 4A                         LSR
2868: 4A                         LSR
2869: A8                         TAY             ;Y=MR DO BAND.
286A: E0 0A                      CPX  #10        ;MRDO LN>10?
286C: 90 01                      BCC  SAME       ;J Y.
286E: 88                         DEY             ;MAKE MS BAND 1 LESS THAN MR.DO.
                        SAME
286F: 84 BA                      STY  MSBAND
                                                 ;
                        ********************************
                        * MAKE HORIZ POF= MR DO'S HAND *
                        ********************************
2871: A5 C0                      LDA  DOPOF
2873: A6 B8                      LDX  LASTJY
2875: 18                         CLC
2876: 7D 6B 29                   ADC  PWPOF,X
2879: 10 0A                      BPL  PP3
287B: C9 80                      CMP  #128
287D: D0 04                      BNE  PP2        ;J NOT LEFT EDGE.
287F: A9 7F                      LDA  #127
```

```
2881:  D0 02     >62          BNE  PR3        ;RT EDGE.
                >63   PP2
2883:  A9 00     >64          LDA  #0         ;DON'T LET OFF LEFT SIDE.
                >65   PP3
2885:  85 BB     >66          STA  MISPOF
2887:  4C 84 29  >67          JMP  PWR99
                >68                          ;
```

```
                * BALL IS ON-DO HIT V.MR DO&DIGS
                *******************************
                PWRO
288A: A2 00              LDX   #0          ;DO IDX.
288C: A5 84              LDA   FRAMEL
288E: 29 01              AND   #1
2890: D0 0F              BNE   PWR3        ;J NOT TIME TO TEST MR DO.
2892: 20 A9 2F           JSR   PWRHIT
2895: B0 03              BCS   CATCH       ;J DO CAUGHT BALL.
2897: 4C DA 28           JMP   PWRMOV
                                           ;
                *     MR DO CAUGHT BALL->
                *******************************
                CATCH
289A: A9 81              LDA   #$81
289C: 85 BC              STA   MISDIR      ;BALL AVAIL NOW.
289E: 4C 55 28           JMP   PWR2
                                           ;
                * POWERBALL VS DIGS TEST-->
                *******************************
                PWR3
28A1: A2 02              LDX   #2
                PWR55
28A3: 20 A9 2F           JSR   PWRHIT
28A6: B0 06              BCS   PWR66       ;J HIT.
28A8: CA                 DEX
28A9: D0 F8              BNE   PWR55       ;TEST OTHER DIG.
28AB: 4C DA 28           JMP   PWRMOV      ;J NO HIT.
                                           ;
                * ONE OF THE DIGGERS IS HIT->
                *******************************
                PWR66
28AE: 8A                 TXA
28AF: 48                 PHA               ;SV X.
28B0: A9 00              LDA   #DEADSND
28B2: 20 41 2D           JSR   HISND       ;MAKE DYING SOUND.
28B5: 68                 PLA
28B6: AA                 TAX               ;RSTR X.
                                           ;KILL THAT DIGGER->
28B7: A9 80              LDA   #$80
28B9: 95 BD              STA   DOBAND,X
28BB: E0 01              CPX   #1
28BD: D0 03              BNE   PWR84       ;J NOT DIG1.
                                           ;
                *******************************
                *REVERSE VIDEO LETTER IF ALF MSTR
                *******************************
28BF: 20 82 2B           JSR   REVVID
                                           ;
                *******************************
                * SET TIME B4 PWRBALL AVAIL NEXT
                *******************************
                PWR84
28C2: A9 50              LDA   #$50
28C4: 20 23 2B           JSR   ADDPTS
                                           ;
28C7: A4 D8              LDY   PWRTIM
28C9: B9 7F 29           LDA   PTIME,Y
28CC: 85 BC              STA   MISDIR
28CE: C8                 INY
28CF: C0 05              CPY   #5
28D1: D0 02              BNE   PWR86
28D3: A0 00              LDY   #0
                PWR86
28D5: 84 D8              STY   PWRTIM
```

```
                >135
28D7: 4C 84 29 >136          JMP  PWR99
```

```
                 ******************************
                 * MOVE BALL HORIZONTALLY-->
                 ******************************
                 PWRMOV
28DA: A5 BC               LDA   MISDIR
28DC: 29 01               AND   #1          ;GET HORIZ DIR.
28DE: 08                  PHP
28DF: A9 01               LDA   #1
28E1: 28                  PLP
28E2: F0 02               BEQ   PRIGHT
28E4: A9 FF               LDA   #$FF        ;LEFT
                 PRIGHT
28E6: 18                  CLC
28E7: 65 BB               ADC   MISPOF
28E9: C9 80               CMP   #128
28EB: F0 14               BEQ   HCHG
28ED: C9 FF               CMP   #$FF
28EF: F0 10               BEQ   HCHG
28F1: 85 BB               STA   MISPOF
28F3: A5 BA               LDA   MSBAND
28F5: 0A                  ASL
28F6: 0A                  ASL
28F7: 0A                  ASL
28F8: 0A                  ASL
28F9: AA                  TAX
28FA: A6 BB               LDX   MISPOF
28FC: 20 4E 2D            JSR   FMTEST
28FF: F0 0E               BEQ   VCHK        ;JP FLD OFF.
                 HCHG
2901: A9 01               LDA   #1
2903: 45 BC               EOR   MISDIR
2905: 85 BC               STA   MISDIR      ;CHG HOR DIR.
2907: A9 08               LDA   #BEEP
2909: 20 3D 2D            JSR   SOUND       ;LO PRIORITY SND.
                                            ;X DESTROYED.
                 HOR99
290C: 4C 84 29            JMP   PWR99
```

```
                ********************************
                * MOVE POWERBALL VERTICALLY->  *
                ********************************
                VCHK
290F: A5 BC                    LDA   MISDIR
2911: 29 02                    AND   #2
2913: F0 37                    BEQ   PDOWN
                ********************************
                * MOVE POWERBALL UP-->
                ********************************
2915: A6 B9                    LDX   MISLN
2917: E0 0E                    CPX   #14
2919: F0 05                    BEQ   PUR4          ;J TO CHANGE BANDS.
291B: E6 B9                    INC   MISLN
291D: 4C 84 29                 JMP   PWR99
                PUR4
2920: A6 BA                    LDX   MSBAND
2922: E0 07                    CPX   #7
2924: F0 18                    BEQ   VCHG          ;J AT TOP OF SCREEN.
2926: E6 BA                    INC   MSBAND
2928: A5 BA                    LDA   MSBAND
292A: 0A                       ASL
292B: 0A                       ASL
292C: 0A                       ASL
292D: 0A                       ASL
292E: A6 BB                    LDX   MISPOF
2930: 20 4E 2D                 JSR   FMTEST
2933: D0 07                    BNE   VCHG1         ;J FLD OFF.
2935: A9 01                    LDA   #1
2937: 85 B9                    STA   MISLN
2939: 4C 84 29                 JMP   PWR99
                VCHG1
293C: C6 BA                    DEC   MSBAND
                VCHG
293E: A9 02                    LDA   #2
2940: 45 BC                    EOR   MISDIR
2942: 85 BC                    STA   MISDIR
                                                   ;
2944: A9 0E                    LDA   #BOOP
2946: 20 3D 2D                 JSR   SOUND         ;LO PRIORITY SND.
                                                   ;X DESTROYED.
                VERT99
2949: 4C 84 29                 JMP   PWR99
                ********************************
                * MOVE POWERBALL DOWN-->
                ********************************
                PDOWN
294C: C6 B9                    DEC   MISLN
294E: D0 34                    BNE   PWR99         ;J DON'T HAVE TO CHG BANDS.
2950: A5 BA                    LDA   MSBAND
2952: F0 EA                    BEQ   VCHG          ;J AT BOTTOM.
2954: 38                       SEC
2955: E9 01                    SBC   #1
2957: 0A                       ASL
2958: 0A                       ASL
2959: 0A                       ASL
295A: 0A                       ASL
295B: A6 BB                    LDX   MISPOF
295D: 20 4E 2D                 JSR   FMTEST
2960: D0 DC                    BNE   VCHG          ;J FLD ON.
2962: C6 BA                    DEC   MSBAND
2964: A9 0E                    LDA   #14
2966: 85 B9                    STA   MISLN
2968: 4C 84 29                 JMP   PWR99
                                                   ;
```

```
                 * POWERBALL TABLES-->
                 ********************************
                 PWPOF
296B: 08 08 08
296E: FF                  DFB  8,8,8,$FF   ;UDRL
                                           ;
                 PWLN
296F: 08 08 07
2972: 06 05 04
2975: 03 02               DFB  8,8,7,6,5,4,3,2
2977: 01 01 0E
297A: 0E 0D 0D
297D: 0C 0B               DFB  1,1,14,14,13,13,12,11
                                           ;
                 * TIME (IN 1/2 SECS) BEFORE BALL AVAIL
                 ********************************
                 PTIME
297F: 02 08 0C
2982: 10 14               DFB  2,8,12,16,20
                                           ;
                 PWR99
                                           ;
                 ********************************
                 * BANK SWITCH FOR REST OF TOPVI*
                 ********************************
2984: 4C 00 20            JMP  TOPSW
```

```
                        *******************************
                        * BANK1 SUBROUTINES           *
                        *******************************
                                PUT   MR.DO.SUBS1
                        */ MR.DO.SUBS1 LASTED: 8/3/83.
                        *******************************
                        *      S U B R O U T I N E S    *
                        *     FOR  1ST  BANK OF MR.DO!  *
                        *******************************
                        IGAME
2987: A9 00                     LDA   #0
2989: 85 84                     STA   FRAMEL
298B: 85 85                     STA   FRAMEH
298D: 85 81                     STA   ROUND       ;RND NUM=0.
298F: 85 82                     STA   SCORLO
2991: 85 83                     STA   SCORHI      ;INIT SCORE.
2993: 85 8B                     STA   ALPHA       ;CLR OUT ALPHA MONSTER REV VIDEO.
                                                  ;INIT IDXS TO SPDTBL->
2995: A5 80                     LDA   GAME
2997: 0A                        ASL               ;X 2.
2998: AA                        TAX
2999: 86 C8                     STX   DIGSPD
299B: E8                        INX
299C: 86 C9                     STX   DIGSPD+1
                                                  ;
299E: A9 00                     LDA   #SONG1
29A0: 20 2C 2D                  JSR   SONG        ;HI PRIORITY SONG.
                                                  ;
29A3: A9 04                     LDA   #4          ;4 MR DO'S.
29A5: 85 DB                     STA   DOINV       ;INIT MRDO INVENTORY.
                        * INIT RAM FOR NEW ROUND -->
                        IROUND
                                                  ;
29A7: A9 06                     LDA   #6          ;GET NUM BADGUYS THIS RND.
29A9: 85 8A                     STA   DIGINV
                                                  ;
29AB: A4 C8                     LDY   DIGSPD
29AD: B9 6D 2F                  LDA   IQTBL,Y
29B0: 85 CC                     STA   DIGIQ
29B2: A4 C9                     LDY   DIGSPD+1
29B4: B9 6D 2F                  LDA   IQTBL,Y
29B7: 85 CD                     STA   DIGIQ+1     ;SET NUM CHAR CELLS TO GO B4 CHANG
E DIR.
29B9: A5 81                     LDA   ROUND
29BB: 29 07                     AND   #7
29BD: AA                        TAX               ;ONLY IDX UP TO 7 FOR REST->
                                                  ;
29BE: BD 27 2F                  LDA   CCTLAD,X    ;CHERRY CONTROL ADDR LO.
29C1: 85 EF                     STA   TEMP1
29C3: A9 2F                     LDA   #>CCTL1     ;CHERRY CONTROL ADDR HI.
29C5: 85 F0                     STA   TEMP2
                                                  ;SET UP HI ADDRS-->
29C7: A9 2E                     LDA   #>FR1L1     ;FIELD REG DATA ADDR HI.
29C9: 85 F2                     STA   TEMP4
29CB: 85 F4                     STA   TEMP6
29CD: 85 F6                     STA   TEMP8
29CF: 85 F8                     STA   TEMP10
                                                  ;SET UP LO ADDRS==>
29D1: BD A0 2E                  LDA   F1LADR,X    ;FR1 LEFT LO ADDR.
29D4: 85 F1                     STA   TEMP3
29D6: BD A8 2E                  LDA   F2LADR,X    ;FR2 LEFT LO ADDR.
29D9: 85 F3                     STA   TEMP5
29DB: BD B0 2E                  LDA   F2RADR,X    ;FR2 RIGHT ADDR LO.
29DE: 85 F5                     STA   TEMP7
29E0: BD B8 2E                  LDA   F1RADR,X    ;FR1 RIGHT ADDR LO.
29E3: 85 F7                     STA   TEMP9       ;FR1 RIGHT
```

```
29E3: 85 F7              STA   TEMP9        ;FR1 RIGHT.
29E5: A0 07              LDY   #7           ;8 BANDS
                IRND
29E7: B1 EF              LDA   (TEMP1),Y
29E9: 99 90 00           STA   CHERRYC,Y    ;CHERRY RAM.
29EC: B1 F1              LDA   (TEMP3),Y
29EE: 99 98 00           STA   FR1L,Y       ;FR1 LEFT RAM MAP.
29F1: B1 F3              LDA   (TEMP5),Y
29F3: 99 A0 00           STA   FR2L,Y       ;FR2 LEFT RAM MAP.
29F6: B1 F5              LDA   (TEMP7),Y
29F8: 99 A8 00           STA   FR2R,Y       ;FR2 RIGHT RAM MAP.
29FB: B1 F7              LDA   (TEMP9),Y
29FD: 99 B0 00           STA   FR1R,Y       ;FR1 RIGHT RAM MAP.
2A00: 88                 DEY
2A01: 10 E4              BPL   IRND         ;LOOP TIL 8 BANDS OF RAM DONE.
                                            ;
                * SET UP APPLE RAM BY ROUND NUM->
                *  RANDOMLY SEL MAIN POS OR ALT->
                ****************************
2A03: A9 02              LDA   #2           ;INIT RANDOM MASK.
2A05: BC C0 2E           LDY   AP1POF,X
2A08: 25 D9              AND   RANDOM
2A0A: F0 03              BEQ   APPLE1
2A0C: BC C8 2E           LDY   AP1POS,X
                APPLE1
2A0F: 84 D4              STY   APPOF
2A11: 0A                 ASL
2A12: BC D0 2E           LDY   AP2POF,X
2A15: 25 D9              AND   RANDOM
2A17: F0 03              BEQ   APPLE2
2A19: BC D8 2E           LDY   AP2POS,X
                APPLE2
2A1C: 84 D5              STY   APPOF+1
2A1E: 0A                 ASL
2A1F: BC E0 2E           LDY   AP3POF,X
2A22: 25 D9              AND   RANDOM
2A24: F0 03              BEQ   APPLE3
2A26: BC E8 2E           LDY   AP3POS,X
                APPLE3
2A29: 84 D6              STY   APPOF+2
2A2B: 0A                 ASL
2A2C: BC F0 2E           LDY   AP4POF,X
2A2F: 25 D9              AND   RANDOM
2A31: F0 03              BEQ   APPLE4
2A33: BC F8 2E           LDY   AP4POS,X
                APPLE4
2A36: 84 D7              STY   APPOF+3
                                            ;
2A38: A9 70              LDA   #$70         ;TOP AP.
2A3A: 85 D0              STA   APBAND
2A3C: A9 50              LDA   #$50
2A3E: 85 D1              STA   APBAND+1
2A40: A9 30              LDA   #$30
2A42: 85 D2              STA   APBAND+2
2A44: A9 10              LDA   #$10         ;BOT AP.
2A46: 85 D3              STA   APBAND+3
                                            ;
2A48: A9 80              LDA   #$80
2A4A: 85 8D              STA   APFALL       ;NO APPLES FALLING.
2A4C: 85 BA              STA   MSBAND       ;PWR BALL IS NOT AVAIL YET.
2A4E: A9 02              LDA   #2           ;SHORT DELAY
2A50: 85 BC              STA   MISDIR       ;SET TIME B4 AVAIL COUNT.
                                            ;
                * PUT MR DO BACK AT BOTTOM OF SCREEN-->
2A52: A9 38              LDA   #56
2A54: 85 84              STA   FRAMEL
2A56: 85 C0              STA   DOPOF
```

```
2A56: 85 C0                STA  DOPOF
2A58: A9 00                LDA  #0
2A5A: 85 BD                STA  DOBAND
                                          ;
2A5C: 85 C4                STA  DIGDAT
2A5E: 85 C5                STA  DIGDAT+1
                                          ;
2A60: 85 D8                STA  PWRTIM    ;BALL AVAIL IDX.
2A62: 85 8E                STA  ANIM8     ;ACTIVATE CH SELECT.
2A64: A9 80                LDA  #$80
2A66: 85 BE                STA  DIGBAND   ;BOTH DIGS
2A68: 85 BF                STA  DIGBAND+1 ;OFF.
                                          ;
2A6A: A9 10                LDA  #PLAY
2A6C: 85 DA                STA  MODE      ;SET PLAY MODE.
                                          ;UP DIG SPD IDXS->
2A6E: A2 01                LDX  #1
                    DSPD
2A70: B4 C8                LDY  DIGSPD,X
2A72: C8                   INY
2A73: C0 14                CPY  #20
2A75: D0 02                BNE  DSPD2
2A77: A0 08                LDY  #8        ;WRAP TO SPD 8.
                    DSPD2
2A79: 94 C8                STY  DIGSPD,X
2A7B: CA                   DEX
2A7C: 10 F2                BPL  DSPD
                                          ;
2A7E: 60                   RTS
```

```
                    ******************************
                    * CHERRY VS. DO/DIGGER HITDET  *
                    *PARAMS PASSED:                *
                    * B7-B4 ACC = BAND NUM OF OBJ  *
                    * B3-B0     = LN OFFSET OF OBJ *
                    *       Y   = POF IDX OF OBJ   *
                    *TEMP RAM USED:                *
                    * TEMP1= OBJ POF IDX/8.        *
                    * TEMP2= NUM COPIES OF CHERRY  *
                    * TEMP3= CHERRY SPACING/8.     *
                    * TEMP4= CPOF TBL IDX          *
                    * TEMP5= CHERRY CONTROL VALUE. *
                    * TEMP6= INDIR ADR LO CCTL TBL *
                    * TEMP7=           HI          *
                    * TEMP8= ORIG CHERRY POS.      *
                    * TEMP9= B4-B7= OBJ BAND NUM.  *
                    *TEMP10= POF TABL IDX OF OBJ.  *
                    ******************************
                    CHIT
                    * TEST IF MD TOTALLY W/I A BAND->
2A7F: 85 F7                 STA  TEMP9       ;SV BAND.
2A81: 84 F8                 STY  TEMP10      ;SV POF IDX.
2A83: 29 0F                 AND  #$0F
2A85: F0 03                 BEQ  CH1
2A87: 4C 15 2B              JMP  NOCH
                                             ;
                    *TEST IF MD TOTALLY ON A COLUMN->
                    ******************************
                    CH1
2A8A: A5 F8                 LDA  TEMP10      ;GET POF.
2A8C: 29 07                 AND  #7
2A8E: F0 03                 BEQ  CH2
2A90: 4C 15 2B              JMP  NOCH        ;JP MD NOT ON COLUMN(NO HIT DET).
                    CH2
2A93: A5 F8                 LDA  TEMP10      ;GET POF.
2A95: 4A                    LSR
2A96: 4A                    LSR
2A97: 4A                    LSR              ;DOPOF/8.
2A98: 85 EF                 STA  TEMP1       ;SV IT.
                                             ;
2A9A: A5 F7                 LDA  TEMP9       ;GET BAND.
2A9C: 4A                    LSR
2A9D: 4A                    LSR
2A9E: 4A                    LSR
2A9F: 4A                    LSR
2AA0: 29 07                 AND  #7
2AA2: AA                    TAX              ;GIVE X BAND NUM.
2AA3: B5 90                 LDA  CHERRYC,X   ;GET CHERRY CONTROLS.
2AA5: 30 03                 BMI  CHERE       ;JP IF THERE IS A CHERRY IN THIS B
AND.
2AA7: 4C 15 2B              JMP  NOCH
                                             ;
                    * TEST IF MD HIT A CHERRY-->
                    ******************************
                    CHERE
2AAA: 29 07                 AND  #$07        ;KEEP ONLY REP/SPACING.
2AAC: 85 F3                 STA  TEMP5       ;SV CHERRY CONTROL.
2AAE: 0A                    ASL
2AAF: A8                    TAY              ;CONTROL*2.
2AB0: B9 00 2F              LDA  REPSPA,Y
2AB3: 85 F0                 STA  TEMP2       ;SV COPIES.
2AB5: B9 01 2F              LDA  REPSPA+1,Y
2AB8: 85 F1                 STA  TEMP3       ;SV SPACING/8.
2ABA: B5 90                 LDA  CHERRYC,X
2ABC: 4A                    LSR
```

```
2ABD: 4A                 LSR
2ABE: 4A                 LSR
2ABF: 29 0F              AND  #$0F
2AC1: 85 F2              STA  TEMP4       ;SV CPOF TBL IDX.
2AC3: 85 F6              STA  TEMP8       ;SV ANOTHER COPY.
2AC5: A2 00              LDX  #0          ;INIT TRIES COUNT.
               CH25
2AC7: A5 EF              LDA  TEMP1       ;GET DOPOF/8.
2AC9: C5 F2              CMP  TEMP4       ;DOPOF=CPOF?
2ACB: F0 0E              BEQ  CH50        ;JP YES,HIT.
2ACD: C6 F0              DEC  TEMP2       ;DEC COPIES.
2ACF: F0 44              BEQ  NOCH        ;JP IF TRIED ALL COPIES.
                                          ;
               * ADD SPACING TO CHERRY POS-->
               ******************************
2AD1: 18                 CLC
2AD2: A5 F2              LDA  TEMP4       ;ADD SPACING TO CPOF.
2AD4: 65 F1              ADC  TEMP3
2AD6: 85 F2              STA  TEMP4
2AD8: E8                 INX              ;UP TRIES COUNT.
2AD9: D0 EC              BNE  CH25        ;JP ALWAYS,TRY AGAIN.
               * THERE IS A HIT--->
               ******************************
               CH50
2ADB: A4 F3              LDY  TEMP5       ;GET CCTL(0-6).
2ADD: B9 0E 2F           LDA  HITTBL,Y
2AE0: 85 F4              STA  TEMP6       ;INDIR LO.
2AE2: A9 2F              LDA  #>V1C
2AE4: 85 F5              STA  TEMP7       ;INDIR HI.
2AE6: 8A                 TXA
2AE7: 0A                 ASL              ;TRIES*2.
2AE8: A8                 TAY
2AE9: B1 F4              LDA  (TEMP6),Y
2AEB: 85 F3              STA  TEMP5       ;NEW CTL+SIGN.
2AED: C8                 INY
2AEE: B1 F4              LDA  (TEMP6),Y   ;GET NUM TIMES TO ADD SPACING TO C
POF IDX.
2AF0: AA                 TAX
               * ADD SPACING TO OLD CHERRY POS-->
               ******************************
               CH75
2AF1: CA                 DEX
2AF2: 30 09              BMI  CH80        ;JP WHEN NEW POS DONE.
2AF4: 18                 CLC
2AF5: A5 F1              LDA  TEMP3       ;SPACING/8.
2AF7: 65 F6              ADC  TEMP8       ;ADD TO ORIG POS IDX.
2AF9: 85 F6              STA  TEMP8
2AFB: D0 F4              BNE  CH75        ;JP ALWAYS.
               CH80
2AFD: A5 F6              LDA  TEMP8       ;GET NEW CPOF IDX.
2AFF: 0A                 ASL
2B00: 0A                 ASL
2B01: 0A                 ASL
2B02: 05 F3              ORA  TEMP5       ;OR CPOF IDX TO CTL.
2B04: 85 F3              STA  TEMP5
2B06: A5 F7              LDA  TEMP9       ;GET BAND.
2B08: 4A                 LSR
2B09: 4A                 LSR
2B0A: 4A                 LSR
2B0B: 4A                 LSR
2B0C: 29 07              AND  #7
2B0E: AA                 TAX              ;GIVE X BAND NUM.
2B0F: A5 F3              LDA  TEMP5
2B11: 95 90              STA  CHERRYC,X   ;NEW CHERRY CTL+POF.
2B13: 38                 SEC              ;FLAG A HIT.
2B14: 60                 RTS
               NOCH
```

```
                  NOCH
2B15: 18                       CLC                ;FLAG NO HIT.
2B16: 60                       RTS
                  CNOTE
2B17: 1C                       DFB  #CHER1
2B18: 29                       DFB  #CHER2
2B19: 36                       DFB  #CHER3
2B1A: 43                       DFB  #CHER4
2B1B: 50                       DFB  #CHER5
2B1C: 5D                       DFB  #CHER6
                  CHRPTS
2B1D: 05 05 05
2B20: 05 05 55                 DFB  5,5,5,5,5,$55
```

```
                 ********************************
                 * ADDPTS-ADD ACC. TO SCORE     *
                 ********************************
                 ADDPTS
2B23: 86 F0                    STX   TEMP2
2B25: A6 83                    LDX   SCORHI
2B27: 86 EF                    STX   TEMP1
                                                ;ADD THE PTS IN->
2B29: F8                       SED
2B2A: 18                       CLC
2B2B: 65 82                    ADC   SCORLO
2B2D: 85 82                    STA   SCORLO
2B2F: A9 00                    LDA   #0
2B31: 65 83                    ADC   SCORHI
2B33: 85 83                    STA   SCORHI
2B35: D8                       CLD
                                                ;DID 1K CHANGE?
2B36: C5 EF                    CMP   TEMP1
2B38: F0 45                    BEQ   NOCHG      ;J N.
                                                ;LET ONLY EVERY 2K PTS->
2B3A: 29 01                    AND   #1
2B3C: D0 41                    BNE   NOCHG
                                                ;
                                                ;
                 *  1K DIGIT CHANGED-->
                 ********************************
                                                ;
                 *IS AN ALPHA MONSTER ALREADY OUT?
                 ********************************
2B3E: A9 02                    LDA   #2
2B40: 25 8E                    AND   ANIM8
2B42: D0 3B                    BNE   NOCHG      ;J Y,ALF IS OUT ALREADY.
                                                ;
                                                ;
                 *IS CH SELECT @ A REV VIDEO CHAR?
                 ********************************
2B44: A5 8B                    LDA   ALPHA
2B46: 29 07                    AND   #7
2B48: AA                       TAX
2B49: A9 08                    LDA   #8         ;LET E.
                 ADD44
2B4B: CA                       DEX
2B4C: 30 04                    BMI   ADD55
2B4E: 0A                       ASL              ;PREPARE MASK.
2B4F: 4C 4B 2B                 JMP   ADD44
                 ADD55
2B52: 25 8B                    AND   ALPHA
2B54: D0 29                    BNE   NOCHG      ;J LET IS REV VIDEO.
                 * CHANGE DIGGER TO ALPHA MONSTER
                 ********************************
2B56: A6 C8                    LDX   DIGSPD
2B58: BD 6D 2F                 LDA   DTIME,X    ;TIME B4 XFORM TO DIG.
2B5B: 85 CA                    STA   DIGTIM     ;DON'T LET HIM DIG.
                                                ;
2B5D: A5 8B                    LDA   ALPHA
2B5F: 29 07                    AND   #7
2B61: AA                       TAX
2B62: BD AA 2B                 LDA   MONSTR,X
2B65: 85 C4                    STA   DIGDAT
2B67: A9 02                    LDA   #2
2B69: 05 8E                    ORA   ANIM8
2B6B: 85 8E                    STA   ANIM8      ;SET FLAG FOR ALF MONSTER OUT.
                                                ;IS THAT DIG ON?
2B6D: A5 BE                    LDA   DIGBAND
2B6F: 10 0E                    BPL   NOCHG      ;J Y.
```

```
                                      ;PUT HIM IN CTR->
2B71: A9 38             LDA  #56
2B73: 85 C1             STA  DIGPOF
2B75: A9 40             LDA  #$40
2B77: 85 BE             STA  DIGBAND
2B79: A5 8A             LDA  DIGINV
2B7B: F0 02             BEQ  NOCHG
2B7D: C6 8A             DEC  DIGINV   ;1 LESS DIG IF ANY LEFT.
              NOCHG
2B7F: A6 F0             LDX  TEMP2
2B81: 60                RTS
```

```
                    ********************************
                    *MAKE REV VIDEO IF DIG WAS ALF->
                    ********************************
                    REVVID
2B82: A5 8E                  LDA  ANIM8
2B84: 29 FD                  AND  #$FF-2
2B86: 85 8E                  STA  ANIM8         ;CLR ALF OUT.
                                                ;
2B88: A5 C4                  LDA  DIGDAT
2B8A: C9 06                  CMP  #6
2B8C: 90 1B                  BCC  ALFRET        ;J N.
                                                ;YES, REV VIDEO HIS LETTER->
2B8E: 86 F3                  STX  TEMP5         ;SV X.
2B90: A5 8B                  LDA  ALPHA
2B92: 29 07                  AND  #7            ;GET CH SELECT.
2B94: AA                     TAX
2B95: A9 08                  LDA  #8            ;LET E.
                    ALFT5
2B97: CA                     DEX
2B98: 30 04                  BMI  HAVIT
2B9A: 0A                     ASL
2B9B: 4C 97 2B               JMP  ALFT5
                    HAVIT
2B9E: 05 8B                  ORA  ALPHA
2BA0: 85 8B                  STA  ALPHA         ;SET REV VIDEO BIT.
                    ********************************
                    *  CLR ALPHA OUT FLAG-->        *
                    ********************************
                                                ;
2BA2: A9 00                  LDA  #0
2BA4: 85 C4                  STA  DIGDAT
2BA6: A6 F3                  LDX  TEMP5         ;RSTR X.
2BA8: 38                     SEC                ;FLAG Y.
                    ALFRET
2BA9: 60                     RTS
                    * IDX TO ALF MONSTER IMGS(DIGIMG).
                    ********************************
                    MONSTR
2BAA: 06 08 0A
2BAD: 0C 0E                  DFB  6,8,10,12,14
```

```
                ******************************
                * PRIMITIVE OBJ MOVE RTNS->    *
                ******************************
                                                ;
                *MDOWN - MOVE OBJ DOWN 1 LINE.
                *       - CHANGE BANDS IF NECESSARY.
                *        IN: X-> DO,DIG1,DIG2 IDX
                *               IE. 0,1,2
                *                                *
                *     OUT: C=1 = MOVE ILLEGAL BECAUSE:
                *                 ALREADY AT BOTTOM OR
                *                 OBJ NOT IN A COLUMN.
                *            OR APPLE IN WAY.
                *           C=0 = MOVE OK, AND
                *           Y = NEW BAND/LN OFFSET.
                ******************************
                MDOWN
                                                ;TEST IF LEGAL TO MOVE->
2BAF: B5 C0                     LDA   DOPOF,X
2BB1: 29 07                     AND   #7
2BB3: D0 40                     BNE   NOMOV     ;JP NOT ON COLUMN.
                                                ;
2BB5: B5 BD                     LDA   DOBAND,X  ;GET BAND/LN.
                                                ;BAND/LN=0?
2BB7: F0 3C                     BEQ   NOMOV     ;JP IN BOTTOM BAND ALREADY.
                                                ;
                                                ;MOVE DOWN->
2BB9: 29 0F                     AND   #$0F      ;LN OFFSET=15?
2BBB: F0 11                     BEQ   MVD50     ;J IF ABOUT TO TAKE UP 2 BANDS.
2BBD: C9 0F                     CMP   #$0F
2BBF: D0 09                     BNE   MVD25     ;JP DON'THAVE TO MOVE DOWN A BAND.
2BC1: B5 BD                     LDA   DOBAND,X
2BC3: 38                        SEC
2BC4: E9 1F                     SBC   #$1F      ;LN=0.
2BC6: 95 BD                     STA   DOBAND,X
2BC8: 18                        CLC
2BC9: 60                        RTS
                                                ;
                MVD25
2BCA: F6 BD                     INC   DOBAND,X  ;ADD 1 TO LN OFFSET (LN WAS < 15).
2BCC: 18                        CLC
2BCD: 60                        RTS
                *  ONLY TEST FOR APPLE IF LN=0
                ******************************
                MVD50
2BCE: B5 BD                     LDA   DOBAND,X
2BD0: 38                        SEC
2BD1: E9 10                     SBC   #$10      ;BAND-1.
2BD3: 85 EF                     STA   TEMP1
2BD5: 20 1C 2D                  JSR   APTEST    ;APPLE ON  BAND BELOW?
2BD8: D0 17                     BNE   MVD55     ;JP NO.
2BDA: B9 D4 00                  LDA   APPOF,Y
2BDD: D5 C0                     CMP   DOPOF,X   ;APOS>OBJPOS?
2BDF: B0 08                     BCS   MVD52     ;JP Y
                *  APPLE IS TO LEFT-->
                ******************************
2BE1: 69 07                     ADC   #7        ;APOS+7
2BE3: D5 C0                     CMP   DOPOF,X
2BE5: B0 0E                     BCS   NOMOV     ;JP AP IN WAY.
2BE7: 90 08                     BCC   MVD55
                * APPLE IS TO RIGHT-->
                ******************************
                MVD52
2BE9: E9 07                     SBC   #7        ;APOS-7
2BEB: 90 08                     BCC   NOMOV     ;J AP AT LEFT EDGE.
```

```
2BED: D5 C0            CMP   DOPOF,X
2BEF: 90 04            BCC   NOMOV       ;JP AP IN WAY.
                                         ;
                 MVD55
2BF1: F6 BD            INC   DOBAND,X    ;OFFSET=1.
                 MVD56
2BF3: 18               CLC
2BF4: 60               RTS
                 NOMOV
2BF5: 38               SEC
2BF6: 60               RTS
                                         ;
```

```
                ********************************
                *MUP - MOVE OBJ UP 1 LINE.
                *        - CHANGE BANDS IF NECESSARY.
                *    IN:  X-> DO,DIG1,DIG2 IDX
                *             IE. 0,1,2
                *                                   *
                *   OUT:  C=1 MOVE IS ILLEGAL BECAUSE:
                *             ALREADY AT TOP OF SCREEN, OR
                *             NOT IN A COLUMN.
                *         C=0 = MOVE OK, AND
                ********************************
                MUP
                                             ;TEST IF LEGAL->
2BF7: B5 C0                 LDA  DOPOF,X
2BF9: 29 07                 AND  #7
2BFB: D0 F8                 BNE  NOMOV       ;JP NOT ON COLUMN.
                                             ;
2BFD: B5 BD                 LDA  DOBAND,X
2BFF: 29 0F                 AND  #$0F        ;LN=0?
2C01: F0 04                 BEQ  MVU50       ;JP YES,MUST MOVE UP A BAND.
                                             ;
2C03: D6 BD                 DEC  DOBAND,X
2C05: 18                    CLC
2C06: 60                    RTS
                MVU50
2C07: B5 BD                 LDA  DOBAND,X
2C09: C9 70                 CMP  #$70        ;AT TOP ALREADY?
2C0B: F0 E8                 BEQ  NOMOV       ;JP YES.
                                             ;
2C0D: A9 10                 LDA  #$10
2C0F: 18                    CLC
2C10: 75 BD                 ADC  DOBAND,X
2C12: 85 EF                 STA  TEMP1
2C14: 20 1C 2D              JSR  APTEST      ;APPLE ON BAND?
2C17: D0 1B                 BNE  MVU55       ;JP N.
                                             ;
2C19: B9 D4 00              LDA  APPOF,Y
2C1C: D5 C0                 CMP  DOPOF,X     ;APOS>=OBJPOS?
2C1E: B0 08                 BCS  MVU52       ;JP Y.
                *  APPLE IS TO LEFT-->
                ********************************
2C20: 69 07                 ADC  #7
2C22: D5 C0                 CMP  DOPOF,X     ;APOS+7>OPOS?
2C24: B0 CF                 BCS  NOMOV       ;JP AP IN WAY.
2C26: 90 0C                 BCC  MVU55       ;ELSE OK.
                *  APPLE IS TO RIGHT-->
                ********************************
                MVU52
2C28: E9 07                 SBC  #7
2C2A: 10 02                 BPL  MVU53       ;J N WRAP.
2C2C: A9 00                 LDA  #0
                MVU53
2C2E: D5 C0                 CMP  DOPOF,X     ;APOS-7>OPOS?
2C30: F0 C3                 BEQ  NOMOV
2C32: 90 C1                 BCC  NOMOV       ;JP IN WAY.
                MVU55
2C34: B5 BD                 LDA  DOBAND,X
2C36: 18                    CLC
2C37: 69 1F                 ADC  #$1F        ;BAND=BAND+1,LN=15.
2C39: 95 BD                 STA  DOBAND,X
2C3B: 18                    CLC
2C3C: 60                    RTS
                                             ;
```

```
                  ********************************
                  *MRIGHT- MOVE OBJ RIGHT 1 PIXEL.
                  *    IN: X= DO,DIG1,DIG2 IDX.
                  *          IE. 0,1,2
                  *                                *
                  *   OUT: C=1 IF MOVE IS ILLEGAL BECAUSE:
                  *              NOT W/I A BAND, OR
                  *              ALREADY AT RIGHT EDGE OF SCREEN.
                  *         OR AGAINST APPLE AT EDGE.
                  *          C=0 MOVE IS OK, AND
                  *         APPLE IS MOVED IF PUSHED.
                  ********************************
                  MRIGHT
                                                 ;TEST IF MOVE IS LEGAL->
2C3D: B5 BD                LDA   DOBAND,X
2C3F: 85 EF                STA   TEMP1           ;SV FOR APTEST.
2C41: 29 0F                AND   #$0F            ;LN=0(W/I A BAND)?
2C43: D0 5F                BNE   NOMVH           ;JP NO.
                                                 ;
2C45: B5 C0                LDA   DOPOF,X
2C47: C9 78                CMP   #120            ;AT EDGE ALREADY?
2C49: F0 59                BEQ   NOMVH           ;JP YES.
                                                 ;
2C4B: 20 1C 2D             JSR   APTEST          ;AN APPLE ON SAME BAND?
2C4E: D0 33                BNE   MVITR           ;JP NO.
                                                 ;
2C50: B5 C0                LDA   DOPOF,X          ;GET POS
2C52: 18                   CLC
2C53: 69 08                ADC   #8
2C55: D9 D4 00             CMP   APPOF,Y         ;PUSHING THE AP?
2C58: D0 29                BNE   MVITR           ;JP N.
                                                 ;
2C5A: B9 D4 00             LDA   APPOF,Y
2C5D: C9 78                CMP   #120            ;AT EDGE?
2C5F: F0 26                BEQ   REVDIR          ;JP Y.
                                                 ;IS IT A FALLING APPLE?
                                                 ;Y=WHICH RAM APPLE IS ON SAME BAND
2C61: A5 8D                LDA   APFALL
2C63: 30 0A                BMI   OSIDE           ;J NO AP FALLING.
2C65: 4A                   LSR
2C66: 4A                   LSR
2C67: 4A                   LSR
2C68: 4A                   LSR                   ;GET WHICH IS FALLING.
2C69: 85 F2                STA   TEMP4
2C6B: C4 F2                CPY   TEMP4           ;IS IT THE ONE BEING PUSHED?
2C6D: F0 35                BEQ   NOMVH           ;J Y.
                                                 ;
                  * IS SOMEONE PUSHING OTHER SIDE?
                  ********************************
                  OSIDE
2C6F: 18                   CLC
2C70: B9 D4 00             LDA   APPOF,Y
2C73: 69 08                ADC   #8
2C75: 20 EF 2C             JSR   APPUSH
2C78: B0 0D                BCS   REVDIR          ;J Y.
                  MVITRA
2C7A: 18                   CLC
2C7B: A9 01                LDA   #1
2C7D: 79 D4 00             ADC   APPOF,Y         ;MV AP.
2C80: 99 D4 00             STA   APPOF,Y
                  MVITR
2C83: F6 C0                INC   DOPOF,X         ;MV OBJ.
2C85: 18                   CLC
2C86: 60                   RTS
```

```
                                 ;
           * CAN'T MOVE - SOMEONE ON OTHER
           *  SIDE OF APPLE BEING PUSHED->
           ******************************
           REVDIR
2C87: 8A            TXA
2C88: F0 1A         BEQ  NOMVH       ;J IF MR.DO.
2C8A: A9 03         LDA  #3
2C8C: 95 CB         STA  DIGIQ-1,X
2C8E: 95 C3         STA  DIGDAT-1,X
2C90: A9 83         LDA  #$83
2C92: 95 C9         STA  DIGTIM-1,X ;START DIGGING.
2C94: B5 BD         LDA  DIGBAND-1,X
2C96: 29 70         AND  #$70        ;BOTTOM?
2C98: F0 06         BEQ  DUP         ;J Y.
2C9A: A9 01         LDA  #DOWND
2C9C: 95 C5         STA  DIGDIR-1,X
2C9E: 38            SEC              ;FLG FAILED.
2C9F: 60            RTS
           DUP
2CA0: A9 00         LDA  #UPD        ;RIGHTD
2CA2: 95 C5         STA  DIGDIR-1,X
                                 ;
           *  NO MOVE HORIZ EXIT-->
           ******************************
           NOMVH
2CA4: 38            SEC
2CA5: 60            RTS
```

```
                 ********************************
                 *MLEFT - MOVE OBJ 1 PIXEL LEFT.
                 *     ALSO MV APPLE IF PUSHING IT.
                 *   IN:   X = DO,DIG1,DIG2 IDX.
                 *         IE. 0,1,2
                 *                                *
                 *   OUT: C=1 = ILLEGAL BECAUSE ALREADY AT LEFT EDGE, OR
                 *              NOT W/I A BAND.
                 *
                 *         C=0  MOVE IS OK, AND
                 ********************************
                 MLEFT
                                          ;TEST IF MOVE IS LEGAL->
2CA6: B5 BD              LDA  DOBAND,X
2CA8: 85 EF              STA  TEMP1       ;SV FOR APTEST.
2CAA: 29 0F              AND  #$0F        ;W/I A BAND?
2CAC: D0 F6              BNE  NOMVH       ;JP NO.
                                          ;
2CAE: B5 C0              LDA  DOPOF,X
2CB0: F0 F2              BEQ  NOMVH       ;JP IF AT LEFT EDGE ALREADY.
                                          ;TEST IF AN APPLE IS ON SAME BAND-
>
2CB2: 20 1C 2D           JSR  APTEST
2CB5: D0 34              BNE  MVITL       ;JP NO AP ON SAME BAND.
2CB7: B5 C0              LDA  DOPOF,X     ;GET POS.
2CB9: 38                 SEC
2CBA: E9 08              SBC  #8          ;C=1
2CBC: D9 D4 00           CMP  APPOF,Y
2CBF: D0 2A              BNE  MVITL       ;JP NOT PUSHING.
2CC1: B9 D4 00           LDA  APPOF,Y
2CC4: F0 C1              BEQ  REVDIR      ;JP AP AT EDGE.
                                          ;IS IT FALLING AP?
2CC6: A5 8D              LDA  APFALL
2CC8: 30 0A              BMI  OSIDE2      ;J NO AP FALLING.
2CCA: 4A                 LSR
2CCB: 4A                 LSR
2CCC: 4A                 LSR
2CCD: 4A                 LSR
2CCE: 85 F2              STA  TEMP4
2CD0: C4 F2              CPY  TEMP4       ;THIS 1 FALLING?
2CD2: F0 D0              BEQ  NOMVH       ;J Y.
                                          ;
                 *  IS SOMEONE PUSHING OTHER SIDE?
                 ********************************
                 OSIDE2
2CD4: 18                 CLC
2CD5: B9 D4 00           LDA  APPOF,Y
2CD8: 38                 SEC
2CD9: E9 08              SBC  #8
2CDB: 30 05              BMI  MVITLA      ;J NR EDGE.
2CDD: 20 EF 2C           JSR  APPUSH
2CE0: B0 A5              BCS  REVDIR      ;J Y.
                                          ;
                 * MOVE BOTH APPLE & OBJ->
                 ********************************
                 MVITLA
2CE2: 38                 SEC
2CE3: B9 D4 00           LDA  APPOF,Y
2CE6: E9 01              SBC  #1
2CE8: 99 D4 00           STA  APPOF,Y
                 MVITL
2CEB: D6 C0              DEC  DOPOF,X     ;DEC OBJ POF.
2CED: 18                 CLC
2CEE: 60                 RTS
                                          ;
```

```
                   * SOMEONE ON OTHER SIDE OF APPLE?
                   ********************************
                   APPUSH
2CEF: 85 EF                 STA  TEMP1       ;SV POS.
2CF1: B9 D0 00              LDA  APBAND,Y
2CF4: 29 F0                 AND  #$F0
2CF6: 85 F1                 STA  TEMP3       ;SV APPLE BAND.
2CF8: 84 F0                 STY  TEMP2
2CFA: A0 02                 LDY  #2
                   APP2
2CFC: B9 C0 00              LDA  DOPOF,Y
2CFF: C5 EF                 CMP  TEMP1
2D01: D0 0E                 BNE  APP9
                                             ;SAME BAND?
2D03: B9 BD 00              LDA  DOBAND,Y
2D06: 30 09                 BMI  APP9        ;J NOT ON.
2D08: 38                    SEC
2D09: E5 F1                 SBC  TEMP3       ;DOBAND-APBAND.
2D0B: F0 0B                 BEQ  APP99       ;J IN WAY.
2D0D: C9 20                 CMP  #$20        ;1 BAND ABOVE?
2D0F: 90 07                 BCC  APP99       ;J Y.
                   APP9
2D11: 88                    DEY
2D12: 10 E8                 BPL  APP2
2D14: 18                    CLC
2D15: A4 F0                 LDY  TEMP2
2D17: 60                    RTS
                   APP99
2D18: A4 F0                 LDY  TEMP2
2D1A: 38                    SEC
2D1B: 60                    RTS
                                             ;
                   ********************************
                   * APTEST - TEST IF APPLE IS ON A CERTAIN BAND.
                   *     IN:  TEMP1=(B4-B7)= BAND IN QUESTION.
                   *  OUT:
                   *       NZ= NO APPLE ON BAND.
                   *        Z= YES, APPLE ON BAND &
                   *           Y=IDX FOR WHICH APPLE
                   ********************************
                   APTEST
2D1C: A0 03                 LDY  #3
                   APT1
2D1E: B9 D0 00              LDA  APBAND,Y
2D21: 29 F0                 AND  #$F0
2D23: C5 EF                 CMP  TEMP1       ;AP ON SAME BAND?
2D25: D0 01                 BNE  APT9        ;JP NO.
2D27: 60                    RTS              ;RET Z.
                   APT9
2D28: 88                    DEY
2D29: 10 F3                 BPL  APT1        ;TRY AGAIN.
2D2B: 60                    RTS              ;RET NZ.
                                             ;
                                             ;
                   * HI PRIORITY SONG->
                   SONG
2D2C: 85 86                 STA  AIDX
2D2E: 85 87                 STA  BIDX
2D30: A9 00                 LDA  #0
2D32: 85 88                 STA  ADUR
2D34: 85 89                 STA  BDUR
2D36: 60                    RTS
                                             ;
                   * LOW PRIORITY SOUNDS->
                   LOSND
```

```
2D37: 86 F7                     STX   TEMP9       ;SV X,
2D39: A6 BD                     LDX   DOBAND
2D3B: 30 0E                     BMI   NOSND       ;J MR DO OFF.
                SOUND
2D3D: A6 88                     LDX   ADUR
2D3F: 10 0A                     BPL   NOSND       ;J SOUND ALREADY ON.
                HISND
2D41: A6 89                     LDX   BDUR
2D43: 10 06                     BPL   NOSND
2D45: 85 86                     STA   AIDX
2D47: A9 00                     LDA   #0
2D49: 85 88                     STA   ADUR
                NOSND
2D4B: A6 F7                     LDX   TEMP9       ;RSTR X,
2D4D: 60                        RTS
                                                  ;
```

```
                        PUT   MR.DO.FIELD.RTNS
               */MR.DO.FIELD.RTNS LASTED:8/1/83
               ********************************
               * FIELD MAP TEST - IS A BIT SET*
               *    IN: A = B0-B3 = LN OFFSET  *
               *            B4-B6 = BAND NUM   *
               *        X = POSTBL IDX         *
               *   OUT: Z = BIT IS NOT SET     *
               *        NZ= BIT IS SET         *
               ********************************
               FMTEST
2D4E: 85 EF             STA   TEMP1       ;SV BAND/LN.
2D50: 86 F0             STX   TEMP2       ;SV POSTBL IDX.
2D52: 20 FB 2D          JSR   LSR4Y
2D55: A5 F0             LDA   TEMP2
2D57: 4A                LSR
2D58: 4A                LSR
2D59: 4A                LSR
2D5A: 4A                LSR
2D5B: 4A                LSR               ; /32.
2D5C: AA                TAX
2D5D: BD 9C 2E          LDA   FBANK,X     ;LO ADDR OF FLD BANK.
2D60: 85 F1             STA   TEMP3
2D62: A9 00             LDA   #0
2D64: 85 F2             STA   TEMP4
2D66: A5 F0             LDA   TEMP2       ;POSTBL IDX.
2D68: 4A                LSR
2D69: 4A                LSR               ;/4.
2D6A: AA                TAX
2D6B: BD 7C 2E          LDA   FMASK,X     ;MASK FOR BIT IN QUESTION.
2D6E: 49 FF             EOR   #$FF
2D70: 31 F1             AND   (TEMP3),Y
2D72: 08                PHP
2D73: A5 EF             LDA   TEMP1       ;GET BAND/LN.
2D75: A6 F0             LDX   TEMP2
2D77: 28                PLP
2D78: 60                RTS               ;RET W/ANSWER.
```

```
                 ********************************
                 * CCTEST - CHAR CELL TEST      *
                 *   TEST IF 2 BITS IN FM =0.   *
                 * IN: A = B0-B3 = LN OFFSET    *
                 *         B4-B7 = BAND NUM     *
                 *       Y = POSTBL IDX (0-120) *
                 * OUT: Z= BITS NOT SET         *
                 *     NZ= AT LEAST 1 BIT IS SET*
                 ********************************
                                          ;ENTRY FOR DIGGERS->
                 CCTST
2D79: 85 EF               STA  TEMP1
2D7B: 84 F0               STY  TEMP2
2D7D: B5 C3               LDA  DIGDAT-1,X
2D7F: 29 FE               AND  #$FE       ;CLR B0.
2D81: 49 02               EOR  #2         ;DIG IMG?
2D83: D0 08               BNE  CCT1       ;J N.
2D85: A9 00               LDA  #0         ;SET EQ.
2D87: F0 26               BEQ  DIGING     ;J Y.
                 CCTEST
2D89: 85 EF               STA  TEMP1      ;SV BAND/LN.
2D8B: 84 F0               STY  TEMP2      ;SV POSTBL IDX.
                                          ;SET UP INDIRECT PTR TO FLD BANK->
                 CCT1
2D8D: 98                  TYA             ;POS.
2D8E: 4A                  LSR
2D8F: 4A                  LSR
2D90: 4A                  LSR
2D91: 4A                  LSR
2D92: 4A                  LSR             ;POS/32.
2D93: A8                  TAY
2D94: B9 9C 2E            LDA  FBANK,Y    ;LO ADDR OF FLD BANK.
2D97: 85 F1               STA  TEMP3
2D99: A9 00               LDA  #0
2D9B: 85 F2               STA  TEMP4
                                          ;GET MASK TO "AND"->
2D9D: A5 F0               LDA  TEMP2      ;
2D9F: 4A                  LSR
2DA0: 4A                  LSR
2DA1: 4A                  LSR             ;POS/8.
2DA2: A8                  TAY
2DA3: B9 E8 2F            LDA  CCMASK,Y   ;MASK FOR 2 BITS.
2DA6: 48                  PHA             ;SV.
2DA7: A5 EF               LDA  TEMP1
2DA9: 20 FB 2D            JSR  LSR4Y
2DAC: 68                  PLA             ;GET MASK.
2DAD: 31 F1               AND  (TEMP3),Y
                 DIGING
2DAF: 08                  PHP
2DB0: A5 EF               LDA  TEMP1
2DB2: A4 F0               LDY  TEMP2
2DB4: 28                  PLP
2DB5: 60                  RTS
```

```
                 *******************************
                 * FMRMV - REMOVE 2 BITS IN FLD *
                 *         MAP                  *
                 *   IN: A = BAND/LN            *
                 *         X = POSTBL IDX.      *
                 *  OUT: BITS RMVD IN FLD MAP AT*
                 *       POSIDX AND POSIDX+4.   *
                 *       (ONLY IF LN OFFSET=0)  *
                 *******************************
                 FMRMV
2DB6: 84 F4                      STY   TEMP6      ;SV Y.
2DB8: 85 EF                      STA   TEMP1      ;SV BAND/LN.
2DBA: 86 F0                      STX   TEMP2      ;SV POSTBL IDX.
2DBC: 29 0F                      AND   #$0F       ;LN=0?
2DBE: F0 04                      BEQ   RMV1       ;JP ENTIRELY IN CHAR CELL.
2DC0: C9 01                      CMP   #1
2DC2: D0 34                      BNE   RMV99      ;J NOT JUST 1 LINE DOWN.
                                                  ;
                 RMV1
2DC4: A5 EF                      LDA   TEMP1
2DC6: 20 FB 2D                   JSR   LSR4Y
2DC9: A9 01                      LDA   #1
2DCB: 85 F3                      STA   TEMP5      ;DO THIS 2 TIMES.
                 RMV2
2DCD: A5 F0                      LDA   TEMP2      ;POSTBL IDX.
2DCF: 4A                         LSR
2DD0: 4A                         LSR
2DD1: 4A                         LSR
2DD2: 4A                         LSR
2DD3: 4A                         LSR              ;/32.
2DD4: AA                         TAX
2DD5: BD 9C 2E                   LDA   FBANK,X    ;LO ADDR OF FLD BANK.
2DD8: 85 F1                      STA   TEMP3
2DDA: A9 00                      LDA   #0
2DDC: 85 F2                      STA   TEMP4
                 * NOW GET MASK TO RMV BIT->
2DDE: A5 F0                      LDA   TEMP2      ;POSTBL IDX.
2DE0: 4A                         LSR
2DE1: 4A                         LSR              ;/4.
2DE2: AA                         TAX
2DE3: BD 7C 2E                   LDA   FMASK,X
2DE6: 31 F1                      AND   (TEMP3),Y  ;APPLY MASK.
2DE8: 91 F1                      STA   (TEMP3),Y
2DEA: C6 F3                      DEC   TEMP5
2DEC: 30 0A                      BMI   RMV99      ;JP DONE TWICE.
                                                  ;ADD 4 TO POSTBL IDX->
2DEE: A5 F0                      LDA   TEMP2
2DF0: 18                         CLC
2DF1: 69 04                      ADC   #4
2DF3: 85 F0                      STA   TEMP2      ;NEW POSTBL IDX.
2DF5: 4C CD 2D                   JMP   RMV2       ;DO IT AGAIN.
                 RMV99
2DF8: A4 F4                      LDY   TEMP6      ;RSTR Y.
2DFA: 60                         RTS
                                                  ;

                 LSR4Y
2DFB: 4A                         LSR
2DFC: 4A                         LSR
2DFD: 4A                         LSR
2DFE: 4A                         LSR
2DFF: 29 07                      AND   #7
2E01: A8                         TAY
2E02: 60                         RTS
```

```
                      OBJ   BEGOBJ+$E07
                      ORG   BEGORG+$E07
             ********************************
             * ORCHARD DATA TABLES          *
             ********************************
                      PUT   MR.DO.FIELD DATA
             *MR.DO.FIELD DATA LASTED 7/29/83
             ********************************
             *      ASYM FLD DATA TABLES    *
             ********************************
                                          ;
             FR2R2
2E07: FF 00 FF
2E0A: FF              DFB   $FF,$00,$FF,$FF
2E0B: FF FF FF        DFB   $FF,$FF,$FF
             FR2L1
2E0E: 0F 3F 3F
2E11: 3F              DFB   $0F,$3F,$3F,$3F
2E12: 3F 3F 3F        DFB   $3F,$3F,$3F
             FR2L8
2E15: 0F 3F 3F
2E18: 00              DFB   $0F,$3F,$3F,$00
             FR2R8
2E19: 3F FF FF
2E1C: FF              DFB   $3F,$FF,$FF,$FF
             FR2R1
             FR2R6
2E1D: 00 FF FF        DFB   $00,$FF,$FF
             FR1R4
2E20: FF              DFB   $FF
             FR1L4
             FR2R7
2E21: FF FF FF        DFB   $FF,$FF,$FF
             FR1L3
2E24: 00              DFB   $00
             FR1L1
             FR1L6
2E25: FF              DFB   $FF
             FR2R3
             FR1L5
2E26: FF FF FF        DFB   $FF,$FF,$FF
             FR2R4
2E29: FF              DFB   $FF
             FR1L8
2E2A: FF FF FF
2E2D: 00              DFB   $FF,$FF,$FF,$00
2E2E: 3F 3F 3F
2E31: 3F              DFB   $3F,$3F,$3F,$3F
             FR1R2
2E32: FF C0 CF
2E35: FF              DFB   $FF,$C0,$CF,$FF
             FR1L2
2E36: FF FF FF
2E39: FF              DFB   $FF,$FF,$FF,$FF
2E3A: FF FF FF
2E3D: C0              DFB   $FF,$FF,$FF,$C0
             FR1R5
2E3E: FC FC 00
2E41: FF              DFB   $FC,$FC,$00,$FF
             FR1R8
2E42: FF FF FF
2E45: FF              DFB   $FF,$FF,$FF,$FF
             FR1R1
2E46: C0 0F 3F
2E49: 3F              DFB   $C0,$0F,$3F,$3F
```

```
2E4A: 3F 3F 0F
2E4D: C0                      DFB  $3F,$3F,$0F,$C0
                     FR1L7
2E4E: 3F                      DFB  $3F
                     FR1R7
2E4F: 3F 3F 3F                DFB  $3F,$3F,$3F
                     FR2L3
2E52: 00                      DFB  0
                     FR2L2
2E53: 3F 3F 3F
2E56: 3F                      DFB  $3F,$3F,$3F,$3F
                     FR2L4
2E57: 3F 3F 3F
2E5A: 00                      DFB  $3F,$3F,$3F,$00
                     FR2L6
2E5B: 3F FF FF
2E5E: FF                      DFB  $3F,$FF,$FF,$FF
                     FR2L7
2E5F: 3F 3F 3F
2E62: 3F                      DFB  $3F,$3F,$3F,$3F
                     FR2R5
2E63: 00                      DFB  $00
                     FR1R3
2E64: FF FF FF
2E67: FF                      DFB  $FF,$FF,$FF,$FF
2E68: FF FF 3F
2E6B: 00                      DFB  $FF,$FF,$3F,$00
                                          ;
                     FR2L5
2E6C: 0F 3F 3F
2E6F: 3F                      DFB  $0F,$3F,$3F,$3F
2E70: 3F 3F 3F
2E73: 00                      DFB  $3F,$3F,$3F,$00
                                          ;
                     FR1R6
2E74: C0 0F 3F
2E77: 3F                      DFB  $C0,$0F,$3F,$3F
2E78: 3F 3F 3F
2E7B: 00                      DFB  $3F,$3F,$3F,$00
                                          ;
                                          ;
                     ********************************
                     *  BIT MASKS TO REMOVE BITS IN FIELD REGS 1 & 2, (LEFT & RI
GHT).
                     *  TABLE IS IDXED BY A POSITION/8  (0 TO 31).
                     *  MASK FOUND IS "ANDED" TO APPROP FIELD REG RAM CELL.
                     ********************************
                     FMASK
                     * FR1 LEFT MASKS-->
2E7C: 7F BF DF
2E7F: EF F7 FB
2E82: FD FE                   DFB  $7F,$BF,$DF,$EF,$F7,$FB,$FD,$FE
                                          ;
                     * FR2 LEFT MASKS-->
2E84: FE FD FB
2E87: F7 EF DF
2E8A: BF 7F                   DFB  $FE,$FD,$FB,$F7,$EF,$DF,$BF,$7F
                                          ;
                     * FR2 RIGHT MASKS-->
2E8C: 7F BF DF
2E8F: EF F7 FB
2E92: FD FE                   DFB  $7F,$BF,$DF,$EF,$F7,$FB,$FD,$FE
                                          ;
                     * FR1 RIGHT MASKS-->
2E94: FE FD FB
2E97: F7 EF DF
```

```
2E9A: BF 7F                   DFB  $FE,$FD,$FB,$F7,$EF,$DF,$BF,$7F
                                   ;
               ********************************
               * START OF FIELD REG MAPS.
               * IDX FROM ABOVE IS /8 TO IDX INTO THIS TABLE.
               * THESE ARE LO BYTE ADDRS TO EACH BANK OF FLD REG DATA.
               ********************************
               FBANK
2E9C: 98                      DFB  FR1L
2E9D: A0                      DFB  FR2L
2E9E: A8                      DFB  FR2R
2E9F: B0                      DFB  FR1R
                                   ;
                                   ;
               ********************************
               * PTRS TO APPROP FIELD TABLES  *
               *  BY ROUND NUMBER.            *
               ********************************
               F1LADR
2EA0: 25                      DFB  <FR1L1
2EA1: 36                      DFB  <FR1L2
2EA2: 24                      DFB  <FR1L3
2EA3: 21                      DFB  <FR1L4
2EA4: 26                      DFB  <FR1L5
2EA5: 25                      DFB  <FR1L6
2EA6: 4E                      DFB  <FR1L7
2EA7: 2A                      DFB  <FR1L8
               F2LADR
2EA8: 0E                      DFB  <FR2L1
2EA9: 53                      DFB  <FR2L2
2EAA: 52                      DFB  <FR2L3
2EAB: 57                      DFB  <FR2L4
2EAC: 6C                      DFB  <FR2L5
2EAD: 5B                      DFB  <FR2L6
2EAE: 5F                      DFB  <FR2L7
2EAF: 15                      DFB  <FR2L8
               F2RADR
2EB0: 1D                      DFB  <FR2R1
2EB1: 07                      DFB  <FR2R2
2EB2: 26                      DFB  <FR2R3
2EB3: 29                      DFB  <FR2R4
2EB4: 63                      DFB  <FR2R5
2EB5: 1D                      DFB  <FR2R6
2EB6: 21                      DFB  <FR2R7
2EB7: 19                      DFB  <FR2R8
               F1RADR
2EB8: 46                      DFB  <FR1R1
2EB9: 32                      DFB  <FR1R2
2EBA: 64                      DFB  <FR1R3
2EBB: 20                      DFB  <FR1R4
2EBC: 3E                      DFB  <FR1R5
2EBD: 74                      DFB  <FR1R6
2EBE: 4F                      DFB  <FR1R7
2EBF: 42                      DFB  <FR1R8
                                   ;
               * APPLE STARTING POSITION TABLES->
               ********************************
               AP1POF
2EC0: 28 60 28
2EC3: 18 50 00
2EC6: 08 38                   DFB  40,96,40,24,80,00,08,56
               AP1POS
2EC8: 08 50 30
2ECB: 70 48 30
2ECE: 38 68                   DFB  8,80,48,112,72,48,56,104
               AP2POF
```

```
2ED0: 68 48 50
2ED3: 28 20 40
2ED6: 40 08       >156            DFB  104,72,80,40,32,64,64,08
                  >157   AP2POS
2ED8: 20 28 18
2EDB: 30 68 70
2EDE: 48 18       >158            DFB  32,40,24,48,104,112,72,24
                  >159   AP3POF
2EE0: 48 68 08
2EE3: 48 08 48
2EE6: 08 40       >160            DFB  72,104,08,72,08,72,08,64
                  >161   AP3POS
2EE8: 58 68 48
2EEB: 40 48 60
2EEE: 28 50       >162            DFB  88,104,72,64,72,96,40,80
                  >163   AP4POF
2EF0: 18 10 70
2EF3: 08 70 30
2EF6: 20 48       >164            DFB  24,16,112,08,112,48,32,72
                  >165   AP4POS
2EF8: 28 30 40
2EFB: 28 28 28
2EFE: 48 00       >166            DFB  40,48,64,40,40,40,72,0
                  >167                          ;
```

```
                     OBJ   BEGOBJ+$F00
                     ORG   BEGORG+$F00
        *******************************
        * CHERRY DATA TABLES          *
        *******************************
                     PUT   MR.DO.CHERRY TABLES
        */MR.DO CHERRY TBL LASTED 8/1/83.
        *******************************
        * CHERRY HIT DETECT TABLES--> *
        *******************************
                                       ;
        * REPITITION,SPACING TABLE-->
        * INDEXED BY CHERRY CONTROL VALUE X 2.
                                       ;
        REPSPA
                                       ;COPIES,SPACING/8->
2F00: 01 00          DFB   1,0         ;1C,0S.
2F02: 02 02          DFB   2,2         ;2C,8S.
2F04: 02 04          DFB   2,4         ;2C,24S.
2F06: 03 02          DFB   3,2         ;3C,8S.
2F08: 02 08          DFB   2,8         ;2C,56S.
2F0A: 00 00          DFB   0,0         ;ILLEGAL
2F0C: 03 04          DFB   3,4         ;3C 24 S.
        * ADDRESSES TO APPROP TRANSITION
        * TABLE (IDXED BY CHERRY CONTROL VALUE).
        *-------------------------------------
        HITTBL
2F0E: 15             DFB   <V1C        ;1 COPY.
2F0F: 17             DFB   <V2C8S      ;2 COPY,8 SPACES.
2F10: 17             DFB   <V2C24S     ;2 COPY,24 SPACES.
2F11: 1B             DFB   <V3C8S      ;3COPY,8SPACES.
2F12: 17             DFB   <V2C56S     ;2 COPY,56 SPACES.
2F13: 00             DFB   0           ;ILLEGAL.
2F14: 21             DFB   <V3C24S     ;3 COPY,24 SPACES.
                                       ;
        *******************************
        * CHERRY CONTROL TRANSITION   *
        *      TABLES-->              *
        *******************************
                                       ;
        * CHERRIES HIT-TESTED FROM LEFTMOST TO RIGHTMOST CHERRY.
                                       ;
        * INDEXED BY NUM TIMES CHERRY POS HAD TO BE TESTED BEFORE F
OUND.
        * IE (0 TO 2)*2.
        * NEW CONTROL,NUM TIMES TO ADD SPACING TO CPOF,
        ***********************************************************
        V1C
2F15: 00 00          DFB   0,0         ;ALL GONE.
        V2C8S
        V2C24S
        V2C56S
                                       ;LEFT->
2F17: 80 01          DFB   $80,1
                                       ;RIGHT->
2F19: 80 00          DFB   $80,0
        V3C8S
                                       ;LEFT->
2F1B: 81 01          DFB   $81,1
                                       ;MID->
2F1D: 82 00          DFB   $82,0
                                       ;RIGHT->
2F1F: 81 00          DFB   $81,0
        V3C24S
                                       ;LEFT->
```

```
2F21: 82 01              DFB  $82,1
                                          ;MID->
2F23: 84 00              DFB  $84,0
                                          ;RIGHT->
2F25: 82 00              DFB  $82,0
                                          ;
                                          ;
            *******************************
            *  INITIAL CHERRY POF/CONTROL  *
            *  ADDRESSES BY ROUND NUMBER   *
            * B0-B2= CHERRY CONTROL VALUE  *
            * B3-B6= INDEX TO POFIDX TABLE *
            * B7    = SOME CHERRY,NO CHERRY *
            *******************************
            CCTLAD
2F27: 2F                 DFB  <CCTL1
2F28: 3D                 DFB  <CCTL2
2F29: 45                 DFB  <CCTL3
2F2A: 4D                 DFB  <CCTL4
2F2B: 35                 DFB  <CCTL5
2F2C: 55                 DFB  <CCTL6
2F2D: 5D                 DFB  <CCTL7
2F2E: 65                 DFB  <CCTL8
                                          ;
            CCTL1
2F2F: 83 83 D3
2F32: D3 C3 C3           DFB  $83,$83,$D3,$D3,$C3,$C3
            CCTL5
2F35: 83 83 93
2F38: 93 C3 C3
2F3B: DB DB              DFB  $83,$83,$93,$93,$C3,$C3,$DB,$DB
            CCTL2
2F3D: 8B 8B C3
2F40: C3 83 83
2F43: DB DB              DFB  $8B,$8B,$C3,$C3,$83,$83,$DB,$DB
            CCTL3
2F45: CB CB 93
2F48: 93 DB DB
2F4B: 83 83              DFB  $CB,$CB,$93,$93,$DB,$DB,$83,$83
            CCTL4
2F4D: 93 93 DB
2F50: DB 83 83
2F53: CB CB              DFB  $93,$93,$DB,$DB,$83,$83,$CB,$CB
            CCTL6
2F55: 83 83 9B
2F58: 9B CB CB
2F5B: 8B 8B              DFB  $83,$83,$9B,$9B,$CB,$CB,$8B,$8B
            CCTL7
2F5D: D3 D3 93
2F60: 93 D3 D3
2F63: 93 93              DFB  $D3,$D3,$93,$93,$D3,$D3,$93,$93
            CCTL8
2F65: 8B 8B CB
2F68: CB 93 93
2F6B: C3 C3              DFB  $8B,$8B,$CB,$CB,$93,$93,$C3,$C3
                                          ;
            *  TIME ( X 2 SEC)  BEFORE A NEW
            *  TURNS INTO A DIGGER.
            *  IDXED BY ROUND.
            *******************************
            IQTBL
            DTIME
2F6D: 08 08 07
2F70: 04 02 06
2F73: 02 04              DFB  8,8,7,4,2,6,2,4
2F75: 05 02 03
```

```
2F78: 04 03 02
2F7B: 04 01              DFB  5,2,3,4,3,2,4,1
2F7D: 01 02 03
2F80: 04                 DFB  1,2,3,4
                  * HOW LONG THEY STAY AS DIGGERS->
                  *******************************
                  DDUR
2F81: 81 81 82
2F84: 82                 DFB  $81,$81,$82,$82
2F85: 85 82 81
2F88: 83                 DFB  $85,$82,$81,$83
2F89: 84 85 84
2F8C: 85                 DFB  $84,$85,$84,$85
2F8D: 83 81 85
2F90: 83                 DFB  $83,$81,$85,$83
2F91: 83 84 81
2F94: 82                 DFB  $83,$84,$81,$82
                                         ;
                  * DIGGER SPEED TABLES-->
                  *******************************
                  * B0=UP SPEED.
                  * B1=DOWN SPEED.
                  * B2=LEFT SPEED.
                  * B3=RIGHT SPEED.
                  *     IDX TBLS BY DIGSPD
                  *******************************
                  SPDTBL
2F95: 00 00 00
2F98: 08                 DFB  0,0,0,8
2F99: 01 04 06
2F9C: 03                 DFB  1,4,6,3
2F9D: 0A 0F 0C
2FA0: 09                 DFB  $0A,$0F,$0C,$09
2FA1: 07 0B 0F
2FA4: 0D                 DFB  $07,$0B,$0F,$0D
2FA5: 0E 0F 0E
2FA8: 0F                 DFB  $0E,$0F,$0E,$0F
                                         ;
                                         ;
                  *******************************
                  * IN X=IDX TO DESIRED SPRITE
                  *     IE. 0=MR DO.
                  *         DIGBAND-DOBAND=1ST DIG.
                  *         DIGBAND+1-DOBAND=2ND DIG.
                  *   OUT C=1=HIT AND MIS IS OFF.
                  *        C=0=NOHIT.
                  *******************************
                  PWRHIT
2FA9: B5 BD              LDA  DOBAND,X
2FAB: 30 39              BMI  NOHITP     ;J OBJ NOT ON.
2FAD: 29 0F              AND  #$0F
2FAF: 85 EF              STA  TEMP1      ;SV OBJ LN OFFSET.
2FB1: A9 0F              LDA  #$0F
2FB3: 38                 SEC
2FB4: E5 B9              SBC  MISLN
2FB6: 85 F0              STA  TEMP2      ;SV (15-MISLN).
2FB8: B5 BD              LDA  DOBAND,X
2FBA: 4A                 LSR
2FBB: 4A                 LSR
2FBC: 4A                 LSR
2FBD: 4A                 LSR
2FBE: 38                 SEC
2FBF: E5 BA              SBC  MSBAND     ;BAND-MSBAND.
2FC1: D0 08              BNE  PH55       ;J NOT SAME BAND.
                                         ;
2FC3: A5 F0              LDA  TEMP2
```

```
2FC3: A5 F0                LDA  TEMP2
2FC5: C5 EF                CMP  TEMP1
2FC7: B0 0C                BCS  PVHIT        ;J HIT VERTICALLY.
2FC9: 90 1B                BCC  NOHITP
                  PH55
2FCB: C9 01                CMP  #1
2FCD: D0 17                BNE  NOHITP       ;J NOT IN BAND ABOVE.
                                             ;
2FCF: A5 F0                LDA  TEMP2
2FD1: C5 EF                CMP  TEMP1
2FD3: B0 11                BCS  NOHITP       ;J NO V HIT.
                                             ;
                  PVHIT
2FD5: B5 C0                LDA  DOPOF,X
2FD7: C5 BB                CMP  MISPOF
2FD9: B0 0B                BCS  NOHITP       ;J OBJ>MIS.
2FDB: 69 06                ADC  #6
2FDD: C5 BB                CMP  MISPOF
2FDF: 90 05                BCC  NOHITP       ;J OBJ+7<MISPOF.
2FE1: A9 80                LDA  #$80
2FE3: 85 BA                STA  MSBAND       ;TURN OFF MIS.
2FE5: 60                   RTS               ;RET W/HIT FLAG.
                  NOHITP
2FE6: 18                   CLC
2FE7: 60                   RTS
                                             ;
                                             ;FLD MASKS->
                  CCMASK
2FE8: C0 30 0C
2FEB: 03                   DFB  $C0,$30,$0C,$03
2FEC: 03 0C 30
2FEF: C0                   DFB  $03,$0C,$30,$C0
2FF0: C0 30 0C
2FF3: 03                   DFB  $C0,$30,$0C,$03
2FF4: 03 0C 30
2FF7: C0                   DFB  $03,$0C,$30,$C0
                                             ;
```

```
                                OBJ   BEGOBJ+$FFC
                                ORG   BEGORG+$FFC
2FFC: 12 20                     DA    PWRUP
                          END
```

--End assembly--

2 bytes

Errors: 0

Symbol table - alphabetical order:

```
    ABORT   =$21C0      ABOVE0  =$222D      ABOVE1  =$2230      ABOVE2  =$2247
    ABOVE3  =$2240      ABOVE6  =$225A      ABOVE7  =$2261      ABVL    =$224C
?   ADAT    =$E5        ADD1K   =$24CD      ADD44   =$2B4B      ADD55   =$2B52
    ADDPTS  =$2B23      ADUR    =$88        AIDX    =$86        ALF99   =$2506
    ALFRET  =$2BA9      ALFT5   =$2B97      ALGONE  =$2058      ALPHA   =$8B
    ANIM8   =$8E        AP1POF  =$2EC0      AP1POS  =$2EC8      AP2POF  =$2ED0
    AP2POS  =$2ED8      AP3POF  =$2EE0      AP3POS  =$2EE8      AP4POF  =$2EF0
    AP4POS  =$2EF8      APBAND  =$D0        APFALL  =$8D        APLEFT  =$2419
?   APOF    =$E7        APP2    =$2CFC      APP9    =$2D11      APP99   =$2D18
?   APPLE   =$233C      APPLE1  =$2A0F      APPLE2  =$2A1C      APPLE3  =$2A29
    APPLE4  =$2A36      APPOF   =$D4        APPUSH  =$2CEF      APRITE  =$2421
?   APRMV   =$23B9      APT1    =$2D1E      APT9    =$2D28      APTEST  =$2D1C
?   ATACOL  =$06    ?   ATACTL  =$04    ?   ATADAT  =$1B    ?   ATBCOL  =$07
?   ATBCTL  =$05    ?   ATBDAT  =$1C        ATBLNK  =$01    ?   ATFCOL  =$08
    ATFCTL  =$0A        ATJBA   =$3C    ?   ATMVIN  =$2A    ?   ATREMV  =$2B
?   ATSALA  =$10    ?   ATSBLA  =$11        ATSCOL  =$09        ATSYNC  =$00
    ATWAIT  =$02    ?   AVAIL   =$2850  ?   BAND    =$DD    ?   BDAT    =$F6
    BDUR    =$89        BEEP    =$08        BEGOBJ  =$8004      BEGORG  =$2000
    BELLS   =$14        BELOW0  =$21FC      BELOW1  =$2201      BIDX    =$87
    BLACK   =$00        BLKWHT  =$2818      BLOL    =$220F      BLOW1   =$27B3
?   BLUE    =$B6        BOOP    =$0E        BOTTIM  =$AC        BOTVI   =$202E
?   BPOF    =$F8        BRKIT   =$24BC  ?   BROWN   =$12        BUT4    =$2779
    BUT5    =$277F      BUTTON  =$2765      CATCH   =$289A      CCMASK  =$2FE8
    CCT1    =$2D8D      CCTEST  =$2D89      CCTL1   =$2F2F      CCTL2   =$2F3D
    CCTL3   =$2F45      CCTL4   =$2F4D      CCTL5   =$2F35      CCTL6   =$2F55
    CCTL7   =$2F5D      CCTL8   =$2F65      CCTLAD  =$2F27      CCTST   =$2D79
    CH1     =$2A8A      CH2     =$2A93      CH25    =$2AC7      CH50    =$2ADB
    CH75    =$2AF1      CH80    =$2AFD      CHER1   =$1C        CHER2   =$29
    CHER3   =$36        CHER4   =$43        CHER5   =$50        CHER6   =$5D
    CHERE   =$2AAA      CHERRYC =$90        CHERRYT =$8C        CHIT    =$2A7F
    CHKHRZ  =$2700      CHRPTS  =$2B1D      CLRAM   =$2017      CNOTE   =$2B17
    CTIME   =$26B0      D1ON    =$2537      DDUR    =$2F81      DEADSND =$00
    DIDMOV  =$22E4      DIGBAND =$BE        DIGDAT  =$C4        DIGDIR  =$C6
    DIGING  =$2DAF      DIGINV  =$8A        DIGIQ   =$CC        DIGPOF  =$C1
    DIGSPD  =$C8        DIGTIM  =$CA        DIR25   =$221B      DIRTBL  =$2324
    DLRU    =$2336      DMASK   =$24CA      DOBAND  =$BD    ?   DODAT   =$C3
    DODEAD  =$20        DOINV   =$DB        DOPOF   =$C0        DOWN    =$272D
    DOWND   =$01    ?   DOWNI   =$04        DRAGEM  =$2441      DRAGIT  =$244C
    DRAGT   =$23F3      DRAGTB  =$20E2      DRLU    =$2330      DSPD    =$2A70
    DSPD2   =$2A79      DTIM9   =$2667      DTIME   =$2F6D      DUP     =$2CA0
    EAT5    =$2516      EATTST  =$2052      EMV     =$21A5      END     =$2FFE
    ENDBOT  =$233C      ENDJOY  =$2839      ENDMV   =$2136      ENDTIM  =$24D7
?   EV0     =$2627      EV02    =$2635      EV05    =$264C      EV07    =$2658
    EV088   =$2669      EV099   =$266C  ?   EV0CHK  =$2633      F03     =$238B
    F1LADR  =$2EA0      F1RADR  =$2EB8      F2LADR  =$2EA8      F2RADR  =$2EB0
    F44     =$2398      F47     =$23AA      F55     =$23B1      F57     =$23C8
    FALL99  =$24D7      FALLMON =$237B      FBANK   =$2E9C      FCOLOR  =$8F
    FLDCOL  =$2829      FLDOUT  =$20C9      FMAP2   =$20D8      FMASK   =$2E7C
    FMRMV   =$2DB6      FMTEST  =$2D4E      FR1L    =$98        FR1L1   =$2E25
    FR1L2   =$2E36      FR1L3   =$2E24      FR1L4   =$2E21      FR1L5   =$2E26
```

	FR1L6	=$2E25		FR1L7	=$2E4E		FR1L8	=$2E2A		FR1R	=$B0
	FR1R1	=$2E46		FR1R2	=$2E32		FR1R3	=$2E64		FR1R4	=$2E20
	FR1R5	=$2E3E		FR1R6	=$2E74		FR1R7	=$2E4F		FR1R8	=$2E42
	FR2L	=$A0		FR2L1	=$2E0E		FR2L2	=$2E53		FR2L3	=$2E52
	FR2L4	=$2E57		FR2L5	=$2E6C		FR2L6	=$2E5B		FR2L7	=$2E5F
	FR2L8	=$2E15		FR2R	=$A8		FR2R1	=$2E1D		FR2R2	=$2E07
	FR2R3	=$2E26		FR2R4	=$2E29		FR2R5	=$2E63		FR2R6	=$2E1D
	FR2R7	=$2E21		FR2R8	=$2E19		FRAMEH	=$85		FRAMEL	=$84
	FTST	=$27B8		GAME	=$80		GAMOVR	=$40	?	GOLD	=$16
?	GOVER	=$25BC	?	GREEN	=$34		HAVDIR	=$2263		HAVIT	=$2B9E
	HCHG	=$2901	?	HIDATA	=$E6	?	HIDATB	=$F7		HISND	=$2D41
	HIT2	=$2079		HITTBL	=$2F0E	?	HOR99	=$290C		HORV	=$22F7
	IGAME	=$2987		II5	=$209E		II9	=$20A4		ILL1	=$26FD
	ILLEG	=$2749		INCINV	=$2098		IQTBL	=$2F6D		IRND	=$29E7
	IROUND	=$29A7		JOY1	=$26E5		JOY98	=$2763		JOY99	=$2765
	JOYADN	=$20		JOYALT	=$40		JOYART	=$80		JOYAUP	=$10
	JOYDAT	=$0280		JOYRD	=$26BB		KEEPMV	=$210D		KM5	=$2139
	KM7	=$215E		KML2	=$216D	?	KMLFT	=$2162		KMRT	=$2184
	KMRT2	=$2190		LASTJY	=$B8	?	LBLUE	=$96		LDUR	=$2326
	LEFT	=$270F		LEFTD	=$03	?	LEFTI	=$0C	?	LODATA	=$DE
?	LODATB	=$EF		LOSND	=$2D37		LSR4Y	=$2DFB		LUDR	=$2332
	MDDN	=$229B		MDLT	=$2285		MDLTJP	=$22E1		MDOHIT	=$20A5
	MDOWN	=$2BAF		MDRT	=$2268		MDRT2	=$2278		MDRT4	=$2280
	MDUP	=$22B1		MID15	=$23E5		MID5	=$23D6		MIDAIR	=$23CD
?	MIDTIM	=$BC		MISDIR	=$BC		MISLN	=$B9		MISPOF	=$BB
	MLEFT	=$2CA6		MODE	=$DA		MONSTR	=$2BAA		MRIGHT	=$2C3D
	MSBAND	=$BA		MUP	=$2BF7	?	MUX	=$CE		MVC1	=$20ED
	MVCHK	=$20E4		MVD2	=$2147		MVD25	=$2BCA		MVD50	=$2BCE
	MVD52	=$2BE9		MVD55	=$2BF1	?	MVD56	=$2BF3		MVITL	=$2CEB
	MVITLA	=$2CE2		MVITR	=$2C83	?	MVITRA	=$2C7A		MVU2	=$211E
	MVU3	=$2126		MVU50	=$2C07		MVU52	=$2C28		MVU53	=$2C2E
	MVU55	=$2C34		NEWDIR	=$21E3		NEWMOV	=$21A8		NEWRND	=$205F
	NF5	=$2359		NF9	=$2364		NG99	=$22F4		NJOY	=$26B8
	NM1	=$21D2		NM2	=$21D9		NM3	=$21E0		NMOV	=$20EA
	NOBOR	=$2305		NOBOR2	=$2321		NOBUT	=$27CC		NOCH	=$2B15
	NOCHER	=$26B4		NOCHG	=$2B7F		NOGOOD	=$22C7		NOHIT	=$20C0
	NOHITP	=$2FE6	?	NOMORE	=$20A9		NOMOV	=$2BF5		NOMVH	=$2CA4
	NOPWR	=$2849		NORES	=$27D8		NOSEL	=$2805		NOSND	=$2D4B
	NOTDIG	=$2684		NOTIM	=$2518		NOX	=$261D		NOXTRA	=$2568
	NXTTRY	=$2092		NXTTST	=$2453		NYET	=$240A	?	ORANGE	=$28
	ORGTBL	=$24C6		OSIDE	=$2C6F		OSIDE2	=$2CD4	?	PD1	=$FC
?	PD10	=$FA	?	PD100	=$F8	?	PD100K	=$F2	?	PD10K	=$F4
?	PD1K	=$F6		PDOWN	=$294C		PH55	=$2FCB		PLAY	=$10
	PMODE	=$203E		PP2	=$2883		PP3	=$2885		PRIGHT	=$28E6
	PTIME	=$297F	?	PTR	=$DC		PUR4	=$2920	?	PURPLE	=$68
	PVHIT	=$2FD5		PWLN	=$296F		PWPOF	=$296B		PWR0	=$288A
	PWR2	=$2855		PWR3	=$28A1		PWR55	=$28A3		PWR66	=$28AE
	PWR84	=$28C2		PWR86	=$28D5		PWR99	=$2984		PWRDEC	=$284C
	PWRDIR	=$2825		PWRHIT	=$2FA9		PWRLN	=$281D		PWRMOV	=$28DA
	PWROFF	=$2821		PWRTIM	=$D8		PWRUP	=$2012		RANDOM	=$D9
	RDUL	=$232C	?	RED	=$22		REPSPA	=$2F00		RESUM	=$80
	REVDIR	=$2C87		REVVID	=$2B82		RIGHT	=$271E		RIGHTD	=$02
?	RIGHTI	=$08		RMV1	=$2DC4		RMV2	=$2DCD		RMV99	=$2DF8
	RNDDWN	=$21F1		RNDLFT	=$224F		RNDRT	=$2235		RNDUP	=$2223
	ROUND	=$81		RUDL	=$2338		SAM1	=$27AE		SAME	=$286F
	SAME1	=$21C7	?	SAMEBD	=$27C3		SB25	=$24A3		SB7	=$2478
	SB70	=$2485		SB88	=$24A0		SCORHI	=$83		SCORLO	=$82
?	SCRCOL	=$00		SEARCH	=$22CD		SEL2	=$27FD		SELECT	=$30
	SETTIM	=$2459		SETTRK	=$2581		SITBRK	=$2462		SOMLFT	=$206F
	SONG	=$2D2C		SONG1	=$00		SONG2	=$31		SONG3	=$51
	SOUND	=$2D3D		SPDTBL	=$2F95		STFALL	=$2367	?	SWIADF	=$40
?	SWIBDF	=$80		SWICOL	=$08		SWIRES	=$01		SWISEL	=$02
?	SWIT	=$27CC		SWITCH	=$0282		TEMP1	=$EF		TEMP10	=$F8
?	TEMP11	=$EC	?	TEMP12	=$ED	?	TEMP13	=$EE	?	TEMP14	=$EA
?	TEMP15	=$EB		TEMP2	=$F0		TEMP3	=$F1		TEMP4	=$F2
	TEMP5	=$F3		TEMP6	=$F4		TEMP7	=$F5		TEMP8	=$F6

```
    TEMP9   =$F7     ? THEEND  =$24D7     TIME64  =$0296     TIMER   =$0284
    TOP2    =$3012     TOPSW   =$2000     TOPTIM  =$B3       TRACK   =$50
    ULRD    =$232A     UP      =$273C     UPALPH  =$24FB     UPD     =$00
?   UPI     =$00       URLD    =$2324     V1C     =$2F15     V2C24S  =$2F17
    V2C56S  =$2F17     V2C8S   =$2F17     V3C24S  =$2F21     V3C8S   =$2F1B
    VCHG    =$293E     VCHG1   =$293C     VCHK    =$290F   ? VERT99  =$2949
    VTEST   =$2427     W44     =$2588     W45     =$2594     W46     =$25D7
    W47     =$25B8   ? WAIT2   =$2518     WAIT3   =$254C     WAIT4   =$2575
    WAIT5   =$25E7     WAIT6   =$25FF     WAIT7   =$2603   ? WHITE   =$0E
    XTRADO  =$70     ? YELLOW  =$28
```

Symbol table - numerical order:

```
    ATSYNC  =$00       BLACK   =$00     ? SCRCOL  =$00     ? UPI     =$00
    UPD     =$00       DEADSND =$00       SONG1   =$00       ATBLNK  =$01
    SWIRES  =$01       DOWND   =$01       ATWAIT  =$02       SWISEL  =$02
    RIGHTD  =$02       LEFTD   =$03     ? ATACTL  =$04     ? DOWNI   =$04
?   ATBCTL  =$05     ? ATACOL  =$06     ? ATBCOL  =$07     ? ATFCOL  =$08
    SWICOL  =$08     ? RIGHTI  =$08       BEEP    =$08       ATSCOL  =$09
    ATFCTL  =$0A     ? LEFTI   =$0C     ? WHITE   =$0E       BOOP    =$0E
?   ATSALA  =$10       JOYAUP  =$10       PLAY    =$10     ? ATSBLA  =$11
?   BROWN   =$12       BELLS   =$14     ? GOLD    =$16     ? ATADAT  =$1B
?   ATBDAT  =$1C       CHER1   =$1C       JOYADN  =$20       DODEAD  =$20
?   RED     =$22     ? YELLOW  =$28     ? ORANGE  =$28       CHER2   =$29
?   ATMVIN  =$2A     ? ATREMV  =$2B       SELECT  =$30       SONG2   =$31
?   GREEN   =$34       CHER3   =$36       ATJBA   =$3C       JOYALT  =$40
?   SWIADF  =$40       GAMOVR  =$40       CHER4   =$43       TRACK   =$50
    CHER5   =$50       SONG3   =$51       CHER6   =$5D     ? PURPLE  =$68
    XTRADO  =$70       JOYART  =$80     ? SWIBDF  =$80       GAME    =$80
    RESUM   =$80       ROUND   =$81       SCORLO  =$82       SCORHI  =$83
    FRAMEL  =$84       FRAMEH  =$85       AIDX    =$86       BIDX    =$87
    ADUR    =$88       BDUR    =$89       DIGINV  =$8A       ALPHA   =$8B
    CHERRYT =$8C       APFALL  =$8D       ANIM8   =$8E       FCOLOR  =$8F
    CHERRYC =$90     ? LBLUE   =$96       FR1L    =$98       FR2L    =$A0
    FR2R    =$A8       BOTTIM  =$AC       FR1R    =$B0       TOPTIM  =$B3
?   BLUE    =$B6       LASTJY  =$B8       MISLN   =$B9       MSBAND  =$BA
    MISPOF  =$BB       MISDIR  =$BC     ? MIDTIM  =$BC       DOBAND  =$BD
    DIGBAND =$BE       DOPOF   =$C0       DIGPOF  =$C1     ? DODAT   =$C3
    DIGDAT  =$C4       DIGDIR  =$C6       DIGSPD  =$C8       DIGTIM  =$CA
    DIGIQ   =$CC     ? MUX     =$CE       APBAND  =$D0       APPOF   =$D4
    PWRTIM  =$D8       RANDOM  =$D9       MODE    =$DA       DOINV   =$DB
?   PTR     =$DC     ? BAND    =$DD     ? LODATA  =$DE     ? ADAT    =$E5
?   HIDATA  =$E6     ? APOF    =$E7     ? TEMP14  =$EA     ? TEMP15  =$EB
?   TEMP11  =$EC     ? TEMP12  =$ED     ? TEMP13  =$EE     ? LODATB  =$EF
    TEMP1   =$EF       TEMP2   =$F0       TEMP3   =$F1       TEMP4   =$F2
?   PD100K  =$F2       TEMP5   =$F3       TEMP6   =$F4     ? PD10K   =$F4
    TEMP7   =$F5     ? BDAT    =$F6       TEMP8   =$F6     ? PD1K    =$F6
?   HIDATB  =$F7       TEMP9   =$F7     ? BPOF    =$F8       TEMP10  =$F8
?   PD100   =$F8     ? PD10    =$FA     ? PD1     =$FC       JOYDAT  =$0280
    SWITCH  =$0282     TIMER   =$0284     TIME64  =$0296     BEGORG  =$2000
    TOPSW   =$2000     PWRUP   =$2012     CLRAM   =$2017     BOTVI   =$202E
    PMODE   =$203E     EATTST  =$2052     ALGONE  =$2058     NEWRND  =$205F
    SOMLFT  =$206F     HIT2    =$2079     NXTTRY  =$2092     INCINV  =$2098
    II5     =$209E     II9     =$20A4     MDOHIT  =$20A5   ? NOMORE  =$20A9
    NOHIT   =$20C0     FLDOUT  =$20C9     FMAP2   =$20D8     DRAGTB  =$20E2
    MVCHK   =$20E4     NMOV    =$20EA     MVC1    =$20ED     KEEPMV  =$210D
    MVU2    =$211E     MVU3    =$2126     ENDMV   =$2136     KM5     =$2139
    MVD2    =$2147     KM7     =$215E   ? KMLFT   =$2162     KML2    =$216D
    KMRT    =$2184     KMRT2   =$2190     EMV     =$21A5     NEWMOV  =$21A8
    ABORT   =$21C0     SAME1   =$21C7     NM1     =$21D2     NM2     =$21D9
    NM3     =$21E0     NEWDIR  =$21E3     RNDDWN  =$21F1     BELOW0  =$21FC
    BELOW1  =$2201     BLOL    =$220F     DIR25   =$221B     RNDUP   =$2223
    ABOVE0  =$222D     ABOVE1  =$2230     RNDRT   =$2235     ABOVE3  =$2240
    ABOVE2  =$2247     ABVL    =$224C     RNDLFT  =$224F     ABOVE6  =$225A
    ABOVE7  =$2261     HAVDIR  =$2263     MDRT    =$2268     MDRT2   =$2278
```

MDRT4	=$2280	MDLT	=$2285	MDDN	=$229B	MDUP	=$22B1
NOGOOD	=$22C7	SEARCH	=$22CD	MDLTJP	=$22E1	DIDMOV	=$22E4
NG99	=$22F4	HORV	=$22F7	NOBOR	=$2305	NOBOR2	=$2321
DIRTBL	=$2324	URLD	=$2324	LDUR	=$2326	ULRD	=$232A
RDUL	=$232C	DRLU	=$2330	LUDR	=$2332	DLRU	=$2336
RUDL	=$2338	ENDBOT	=$233C	? APPLE	=$233C	NF5	=$2359
NF9	=$2364	STFALL	=$2367	FALLMON	=$237B	F03	=$238B
F44	=$2398	F47	=$23AA	F55	=$23B1	? APRMV	=$23B9
F57	=$23C8	MIDAIR	=$23CD	MID5	=$23D6	MID15	=$23E5
DRAGT	=$23F3	NYET	=$240A	APLEFT	=$2419	APRITE	=$2421
VTEST	=$2427	DRAGEM	=$2441	DRAGIT	=$244C	NXTTST	=$2453
SETTIM	=$2459	SITBRK	=$2462	SB7	=$2478	SB70	=$2485
SB88	=$24A0	SB25	=$24A3	BRKIT	=$24BC	ORGTBL	=$24C6
DMASK	=$24CA	ADD1K	=$24CD	FALL99	=$24D7	? THEEND	=$24D7
ENDTIM	=$24D7	UPALPH	=$24FB	ALF99	=$2506	EAT5	=$2516
NOTIM	=$2518	? WAIT2	=$2518	D1ON	=$2537	WAIT3	=$254C
NOXTRA	=$2568	WAIT4	=$2575	SETTRK	=$2581	W44	=$2588
W45	=$2594	W47	=$25B8	? GOVER	=$25BC	W46	=$25D7
WAIT5	=$25E7	WAIT6	=$25FF	WAIT7	=$2603	NOX	=$261D
? EVO	=$2627	? EVOCHK	=$2633	EVO2	=$2635	EVO5	=$264C
EVO7	=$2658	DTIM9	=$2667	EVO88	=$2669	EVO99	=$266C
NOTDIG	=$2684	CTIME	=$26B0	NOCHER	=$26B4	NJOY	=$26B8
JOYRD	=$26BB	JOY1	=$26E5	ILL1	=$26FD	CHKHRZ	=$2700
LEFT	=$270F	RIGHT	=$271E	DOWN	=$272D	UP	=$273C
ILLEG	=$2749	JOY98	=$2763	JOY99	=$2765	BUTTON	=$2765
BUT4	=$2779	BUT5	=$277F	SAM1	=$27AE	BLOW1	=$27B3
FTST	=$27B8	? SAMEBD	=$27C3	NOBUT	=$27CC	? SWIT	=$27CC
NORES	=$27D8	SEL2	=$27FD	NOSEL	=$2805	BLKWHT	=$2818
PWRLN	=$281D	PWROFF	=$2821	PWRDIR	=$2825	FLDCOL	=$2829
ENDJOY	=$2839	NOPWR	=$2849	PWRDEC	=$284C	? AVAIL	=$2850
PWR2	=$2855	SAME	=$286F	PP2	=$2883	PP3	=$2885
PWR0	=$288A	CATCH	=$289A	PWR3	=$28A1	PWR55	=$28A3
PWR66	=$28AE	PWR84	=$28C2	PWR86	=$28D5	PWRMOV	=$28DA
PRIGHT	=$28E6	HCHG	=$2901	? HOR99	=$290C	VCHK	=$290F
PUR4	=$2920	VCHG1	=$293C	VCHG	=$293E	? VERT99	=$2949
PDOWN	=$294C	PWPOF	=$296B	PWLN	=$296F	PTIME	=$297F
PWR99	=$2984	IGAME	=$2987	IROUND	=$29A7	IRND	=$29E7
APPLE1	=$2A0F	APPLE2	=$2A1C	APPLE3	=$2A29	APPLE4	=$2A36
DSPD	=$2A70	DSPD2	=$2A79	CHIT	=$2A7F	CH1	=$2A8A
CH2	=$2A93	CHERE	=$2AAA	CH25	=$2AC7	CH50	=$2ADB
CH75	=$2AF1	CH80	=$2AFD	NOCH	=$2B15	CNOTE	=$2B17
CHRPTS	=$2B1D	ADDPTS	=$2B23	ADD44	=$2B4B	ADD55	=$2B52
NOCHG	=$2B7F	REVVID	=$2B82	ALFT5	=$2B97	HAVIT	=$2B9E
ALFRET	=$2BA9	MONSTR	=$2BAA	MDOWN	=$2BAF	MVD25	=$2BCA
MVD50	=$2BCE	MVD52	=$2BE9	MVD55	=$2BF1	? MVD56	=$2BF3
NOMOV	=$2BF5	MUP	=$2BF7	MVU50	=$2C07	MVU52	=$2C28
MVU53	=$2C2E	MVU55	=$2C34	MRIGHT	=$2C3D	OSIDE	=$2C6F
? MVITRA	=$2C7A	MVITR	=$2C83	REVDIR	=$2C87	DUP	=$2CA0
NOMVH	=$2CA4	MLEFT	=$2CA6	OSIDE2	=$2CD4	MVITLA	=$2CE2
MVITL	=$2CEB	APPUSH	=$2CEF	APP2	=$2CFC	APP9	=$2D11
APP99	=$2D18	APTEST	=$2D1C	APT1	=$2D1E	APT9	=$2D28
SONG	=$2D2C	LOSND	=$2D37	SOUND	=$2D3D	HISND	=$2D41
NOSND	=$2D4B	FMTEST	=$2D4E	CCTST	=$2D79	CCTEST	=$2D89
CCT1	=$2D8D	DIGING	=$2DAF	FMRMV	=$2DB6	RMV1	=$2DC4
RMV2	=$2DCD	RMV99	=$2DF8	LSR4Y	=$2DFB	FR2R2	=$2E07
FR2L1	=$2E0E	FR2L8	=$2E15	FR2R8	=$2E19	FR2R1	=$2E1D
FR2R6	=$2E1D	FR1R4	=$2E20	FR1L4	=$2E21	FR2R7	=$2E21
FR1L3	=$2E24	FR1L1	=$2E25	FR1L6	=$2E25	FR2R3	=$2E26
FR1L5	=$2E26	FR2R4	=$2E29	FR1L8	=$2E2A	FR1R2	=$2E32
FR1L2	=$2E36	FR1R5	=$2E3E	FR1R8	=$2E42	FR1R1	=$2E46
FR1L7	=$2E4E	FR1R7	=$2E4F	FR2L3	=$2E52	FR2L2	=$2E53
FR2L4	=$2E57	FR2L6	=$2E5B	FR2L7	=$2E5F	FR2R5	=$2E63
FR1R3	=$2E64	FR2L5	=$2E6C	FR1R6	=$2E74	FMASK	=$2E7C
FBANK	=$2E9C	F1LADR	=$2EA0	F2LADR	=$2EA8	F2RADR	=$2EB0
F1RADR	=$2EB8	AP1POF	=$2EC0	AP1POS	=$2EC8	AP2POF	=$2ED0
AP2POS	=$2ED8	AP3POF	=$2EE0	AP3POS	=$2EE8	AP4POF	=$2EF0

```
AP4POS   =$2EF8     REPSPA   =$2F00     HITTBL   =$2F0E     V1C      =$2F15
V2C8S    =$2F17     V2C24S   =$2F17     V2C56S   =$2F17     V3C8S    =$2F1B
V3C24S   =$2F21     CCTLAD   =$2F27     CCTL1    =$2F2F     CCTL5    =$2F35
CCTL2    =$2F3D     CCTL3    =$2F45     CCTL4    =$2F4D     CCTL6    =$2F55
CCTL7    =$2F5D     CCTL8    =$2F65     IQTBL    =$2F6D     DTIME    =$2F6D
DDUR     =$2F81     SPDTBL   =$2F95     PWRHIT   =$2FA9     PH55     =$2FCB
PVHIT    =$2FD5     NOHITP   =$2FE6     CCMASK   =$2FE8     END      =$2FFE
TOP2     =$3012     BEGOBJ   =$8004
```

```
:L

*/MR.DO.BANK2 (PAL)LAST EDIT:9/14/83
                              ;
********************************
* FINAL LISTING FOR ATARI VCS "MR. DO!"
* PAL VERSION.... 9/12/83
* BY ED ENGLISH OF INDIVIDEO,INC.
********************************
                              ;
* 2ND 4K BANK OF MR.DO! ->
* THIS IS THE MAIN FILE FOR BANK2 OF MR. DO!
********************************
         PAG
         LST  ON
********************************
* ATARI 2600 EQUATE FILE       *
********************************
         PUT  MR.DO.VCSDEF
         PAG
********************************
* RAM DEFINITION & EQUATES     *
********************************
         PUT  MR.DO.EQU
BOTVI    =    $202E
         ORG  $2FFC
                              ;MICE VECTORS.
         DA   $3000
         DA   END
         PAG
********************************
* TOP VERTICAL INTERVAL        *
********************************
         PUT  MR.DO.TOPVI
         PAG
********************************
* TITLE SCREEN PAINTING FILE   *
********************************
         PUT  MR.DO.TITLE
         PAG
********************************
* ORCHARD SCREEN SETUP FILE    *
********************************
         PUT  MR.DO.DISPLAY
         PAG
********************************
* SOUND & MUSIC CONTROL FILE   *
********************************
         PUT  MR.DO.MUSIC
         PAG
********************************
* POSITION LATCH VALUES FILE   *
********************************
         PUT  POSITION.TABLE
         PAG
********************************
* SOUND & MUSIC TABLES         *
********************************
         PUT  MR.DO.SND  TABLES
         PAG
         OBJ  $8894
         ORG  $3890
********************************
* DIGIT DATA FILE              *
```

```
*********************************
         PUT  MR.DO.DIGITS
         PAG
         OBJ  $8904
         ORG  $3900
*********************************
* SPRITE B IMAGE DATA FILE      *
*********************************
         PUT  MR.DO.SPRITEB IMAGES
         PAG
*********************************
* ADDRESS PTRS FOR WORDS        *
*********************************
         PUT  MR.DO.ADDRESS PTRS
         PAG
         OBJ  $8A04
         ORG  $3A00
*********************************
* SPRITE A IMAGES (PAGE 1)      *
*********************************
         PUT  MR.DO.SA   IMG1
         PAG
         OBJ  $8B04
         ORG  $3B00
*********************************
* SPRITE A IMAGES (PAGE 2)      *
*********************************
         PUT  MR.DO.SA   IMG2
         PAG
         OBJ  $8C04
         ORG  $3C00
*********************************
* LETTER IMAGE TABLES           *
*********************************
         PUT  MR.DO.LETTER TABLES
         PAG
         OBJ  $8CF8
         ORG  $3CF4
*********************************
* ORCHARD SCREEN PAINT FILE     *
*********************************
         PUT  MR.DO.ORCHARD
         PAG
*********************************
* DISPLAY RTN FOR 6 SPRITES     *
*********************************
         PUT  MR.DO.SCORE RTN
         PAG
         OBJ  $9000
         ORG  $3FFC
         DA   INITSW
END

:ASM
```

```
*/MR.DO.BANK2 (PAL)LAST EDIT:9/14/83
                                 ;
********************************
* FINAL LISTING FOR ATARI VCS "MR. DO!"
* PAL VERSION.... 9/12/83
* BY ED ENGLISH OF INDIVIDEO,INC.
********************************
                                 ;
* 2ND 4K BANK OF MR.DO! ->
* THIS IS THE MAIN FILE FOR BANK2 OF MR. DO!
********************************
```

```
********************************
* ATARI 2600 EQUATE FILE       *
********************************
           PUT  MR.DO.VCSDEF
*FILE: VCSDEF (ATDEF W/LESS COMMENTS).
*ATARI VCS VIDEO REGS + 6532 RIOT
*********************************
                                ;
ATSYNC    =     $00             ;B1=1 BRINGS GUN HOME.
ATBLNK    =     $01             ;B1=1 TURN GUN OFF.
ATWAIT    =     $02             ;STOP 6507 UNTIL END OF LINE.
ATHORC    =     $03             ;RESET HORIZONTAL COUNTER.
ATACTL    =     $04             ;SPRITE/MISSLE A CONTROL-
ATBCTL    =     $05             ;SAME AS ATACTL FOR SPRITE B.
ATACOL    =     $06             ;SPRITE/MISSLE A COLOR.
ATBCOL    =     $07             ;COLOR SPRITE B
ATFCOL    =     $08             ;FIELD COLOR
ATSCOL    =     $09             ;SCREEN COLOR
ATFCTL    =     $0A             ;FIELD DATA/MISSLE CONTROL
ATFR0     =     $0D             ;B4-7: FIELD REG 0
ATFR1     =     $0E             ;B0-7:FIELD REG 1
ATFR2     =     $0F             ;B0-7:FIELD REG 2
ATSALA    =     $10             ;SPRITE A HORIZ LATCH.
ATSBLA    =     $11
ATAWAV    =     $15             ;CHANNEL A WAVEFORM (B0-B3).
ATBWAV    =     $16             ;CHANNEL B WAVEFORM.
ATADIV    =     $17             ;CHANNEL A FREQ DIVISOR (B0-B4).
ATBDIV    =     $18             ;CHANNEL B FREQ DIVISOR.
ATAVOL    =     $19             ;CHANNEL A VOLUME.(B0-B3).
ATBVOL    =     $1A             ;CHANNEL B VOLUME.
ATADAT    =     $1B             ;SPRITE A DATA.
ATBDAT    =     $1C             ;SPRITE B DATA
ATENMA    =     $1D             ;B1=1 MIS A ENABLED IF ATMATK=0.
ATENMB    =     $1E             ;MIS. B ENABLE.
ATENFM    =     $1F             ;B1= FIELD MIS ENABLE.
ATSAIN    =     $20             ;SPRITE A HORIZ INCREMENT (B4-B7).
ATSBIN    =     $21
ATASEL    =     $25             ;SA FONT SELECT.
ATBSEL    =     $26             ;SB SELECT.
ATFSEL    =     $27             ;FIELD MIS. ENABLE SELECT.
ATMVIN    =     $2A             ;ADDS INCR. TO SPRITE & MISSLE POS
ITIONS.
ATREMV    =     $2B             ;RESET ALL 5 INCREMENT REGS.
ATJBA     =     $3C             ;JOY BUTTON A.
ATJBB     =     $3D             ;JOY BUTTON B.
JOYDAT    =     $280            ;JOYSTICKDATA (PORT A).ALSO PADDLE
 BUTTONS.
                                ;0=CLOSED  1=OPEN
*   JOYDAT BITMASKS-->
*----------------------------
JOYBUP    =     $01             ;PLAYER BJOYSTICK UP
JOYBDN    =     $02             ;B DOWN
JOYBLT    =     $04             ;B LEFT
JOYBRT    =     $08             ;B RIGHT
JOYAUP    =     $10             ;A UP
JOYADN    =     $20             ;A DOWN
JOYALT    =     $40             ;A LEFT
JOYART    =     $80             ;A RIGHT
                                ;
                                ;
IOADIR    =     $281            ;PORT A DIRECTION REG.
                                ;FOR EACH BIT,  1=OUTPUT, 0=INPUT.
                                ;
SWITCH    =     $282            ;PANEL SWITCHES (PORT B).
*   BIT MASKS FOR SWITCH-->
```

```
*-----------------------------------------
SWIRES    =     $01         ;GAME RESET
SWISEL    =     $02         ;GAME SELECT
SWICOL    =     $08         ;TV TYPE(0=BW, 1=COL)
SWIADF    =     $40         ;PLAYER A DIFFICULTY
SWIBDF    =     $80         ;        B
                            ;
IOBDIR    =     $283        ;PORT B DIRECTION REG.
                            ;
*  6532 READ-ONLY REGS
*-----------------------------------
TIMER     =     $284        ;TIMER
TIME64    =     $296        ;TIMER/64.
```

```
********************************
* RAM DEFINITION & EQUATES     *
********************************
         PUT  MR.DO.EQU
*/MR.DO.EQU (PAL) LAST EDIT:9/15/83
********************************
*                              *
*   *****      *     *   *     *
*   *   *     * *    ** **     *
*   *****    *****   * * *     *
*   **       *   *   *   *     *
*   * *      *   *   *   *     *
*   *  **    *   *   *   *     *
*                              *
********************************
*    GAME CONTROL RAM          *
*-------------------------------
GAME     =   $80        ;B0-B3 = GAME NUM.
ROUND    =   $81        ;B0-B3 = ROUND NUM.
                        ;
********************************
*         SCORE DATA           *
*-------------------------------
SCORLO   =   $82        ;LO 2 SCORE DIGITS.
SCORHI   =   $83        ;HI 2 SCORE DIGITS.
                        ;
FRAMEL   =   $84        ;FRAME COUNT LO.
FRAMEH   =   $85        ;FRAME COUNT HI.
                        ;
********************************
*        SOUND DATA            *
*-------------------------------
AIDX     =   $86        ;IDX TO CH A SOUND.
BIDX     =   $87        ;IDX TO CH B SOUND.
ADUR     =   $88        ;DURATION OF CH A SOUND.
                        ;ZERO  = GET NEXT NOTE.
                        ;MINUS = NO SOUND ON.
BDUR     =   $89        ;DURATION OF CH B SOUND.
                        ;
********************************
*    MISC.  STATUS  BYTES-->   *
********************************
DIGINV   =   $8A        ;NUM DIGGERS LEFT.
ALPHA    =   $8B        ;ALPHA MONSTER STATUS.
                        ;B0-B2=IDX FOR CHANNEL SELECT.
                        ;B3-B7=LETTER GOTTEN FLAGS.
CHERRYT  =   $8C        ;CHERRY TIMER/NOTE PTR.
                        ;B0-B4=TIMER SINCE LAST CHERRY EAT
EN.
                        ;  (0=TIMER EXPIRED).
                        ;B5-B7=NOTE IDX FOR NEXT CHERRY EA
TEN SOUND.
                        ;
APFALL   =   $8D        ;APPLE FALLING IDX.
                        ;B7=1=NO APPLE FALLING.
                        ;B4-B6=WHICH APPLE IS FALLING.
                        ;B0-B3=STAGE TIMER.
ANIM8    =   $8E        ;ANIMATION FLAGS.
                        ;B7=MR DO BEING DRAGGED.
                        ;B6=DIG1 BEING DRAGGED.
                        ;B5=DIG2 BEING DRAGGED.
                        ;B1=ALF MONSTER OUT.
                        ;B0=MR DO IMG.FLIP/FLOP.
FCOLOR   =   $8F        ;FIELD (ORCHARD) COLOR.
********************************
```

```
*        CHERRY DATA              *
*-------------------------------
                                   ;8 BYTES ($90-$97).
CHERRYC  =     $90                 ;CHERRY CONTROLS FOR 8 BANDS.
                                   ;B0-B2 = CONTROL VALUE (REP/SPACIN
G).
                                   ;B3-B6 = IDX TO CPOF TABLE.
                                   ;B7 = NO CHERRY/SOME CHERRY FLAG.
                                   ;
*******************************
*      ASYM FIELD DATA          *
*-------------------------------
                                   ;32 BYTES ($98-$B7).
FR1L     =     $98                 ;8 BANDS OF FR1 LEFT DATA.
FR2L     =     $A0                 ;8 BANDS OF FR2 LEFT DATA.
FR2R     =     $A8                 ;8 BANDS OF FR1 RIGHT DATA.
FR1R     =     $B0                 ;8 BANDS OF FR2 RIGHT DATA.
                                   ;
LASTJY   =     $B8                 ;LAST LEGAL JOY (MR.DO. DIR).
                                   ;
*******************************
*      MISSLE DATA              *
*-------------------------------
MISLN    =     $B9                 ;MIS LINENUM.
MSBAND   =     $BA                 ;MIS VERT POS.
                                   ;B0-B3 = LN OFFSET.
                                   ;B4-B6 = BAND NUM.
                                   ;B7 = ON/OFF FLAG.
                                   ;
MISPOF   =     $BB                 ;MIS HORIZ POS.
                                   ;B0-B6 = IDX TO POSTBL.
                                   ;B7 = MIS AVAILABLE FLAG.
                                   ;
MISDIR   =     $BC                 ;MIS DIRECTION.
                                   ;B0-B1 = MIS DIRECTION.
                                   ;ALSO DOUBLES AS TIME
                                   ;BEFORE PWRBALL AVAIL AGAIN.
                                   ;
                                   ;
*******************************
*   MR.DO & DIGGER DATA         *
*-------------------------------
DOBAND   =     $BD
DIGBAND  =     $BE                 ;DIG VERT POS.
                                   ;B0-B3 = LN OFFSET.
                                   ;B4-B6 = BAND NUM.
                                   ;B7= ON/OFF FLAG.
                                   ;
DOPOF    =     $C0
DIGPOF   =     $C1                 ;DIG HORIZ POS.
                                   ;B0-B6 = IDX TO POSTBL.
                                   ;
DODAT    =     $C3
DIGDAT   =     $C4                 ;DIG DATA PTR.
                                   ;
DIGDIR   =     $C6                 ;DIG CONTROL.
                                   ;B0-B1 = DIRECTION.
                                   ;B7 = DIGGING FLAG.
DIGSPD   =     $C8                 ;DIG SPEED.
                                   ;(IDX TO SPDTBL)
                                   ;B0= UP SPEED.
                                   ;B1= DOWN SPEED.
                                   ;B2= LEFT SPEED.
                                   ;B3= RIGHT SPEED.
                                   ;
DIGTIM   =     $CA                 ;DIG STAGE TIMER.
```

```
DIGIQ       =     $CC           ;DIG INTELLIGENCE.
                                ;B0-B2=HOW MANY CCELLS TO GO
                                ;BEFORE TRYING NEW DIR.
MUX         =     $CE           ;NUMO TO 2 FOR MUX MGR.
                                ;
                                ;
********************************
*       APPLE  RAM             *
********************************
                                ;8 BYTES ($D0-$D7).
APBAND      =     $D0           ;APPLE POS.
                                ;B0-B3 = IMG TBL IDX.
                                ;B4-B6 = BAND NUM.
                                ;B7 = ON/GONE FLAG.
                                ;
APPOF       =     $D4           ;APPLE HORIZ POS.
                                ;B0-B6 = IDX TO POSTBL.
                                ;B7 = FALLING FLAG.
PWRTIM      =     $D8           ;IDX TO PTIME FOR WHEN BALL AVAIL
AGAIN.
MODE        =     $DA           ;GAME MODE.
RANDOM      =     $D9           ;FREE RUNNING RANDOM #.
DOINV       =     $DB           ;NUM MR DO'S LEFT.
                                ;
********************************
*   TEMPORARY (SHARED) RAM     *
*-------------------------------
                                ;36 BYTES ($DC-$FF).
                                ;
*  RAM USED TO PAINT PLAYFIELD->
********************************
PTR         =     $DC           ;SA IMG PAGE FLAGS FOR 8 BANDS.
                                ;
BAND        =     $DD           ;BAND NUM
                                ;
* SPRITE A (DIG,APPLE) DISPLAY RAM
*  ($DE-$EE)
**********************************
LODATA      =     $DE           ;LO ADDRS SA (8 BANDS).
ADAT        =     $E5           ;LO ADDR FOR SA INDIRECT.
HIDATA      =     $E6           ;HI DATA ADDRS FOR SA.
                                ;$E7-$EE->
APOF        =     $E7           ;SA POFS.
                                ;
* SPRITE B (MR DO,CHERRY) DISPLAY RAM
*   ($EF-$FF)
*************************************
LODATB      =     $EF           ;LO ADDRS SB (8 BANDS).
BDAT        =     $F6           ;LO ADDR FOR SB INDIRECT.
HIDATB      =     $F7           ;HI DATA ADDR FOR SB.
                                ;$F8-$FF->
                                ;**********
BPOF        =     $F8           ;SB POF VALUES FOR 8 BANDS.
                                ;
                                ;
*  TEMP VERTICAL INTERVAL RAM
*------------------------------
TEMP14      =     $EA
TEMP15      =     $EB
TEMP11      =     $EC
TEMP12      =     $ED
TEMP13      =     $EE
TEMP1       =     $EF
TEMP2       =     $F0
TEMP3       =     $F1
TEMP4       =     $F2
```

```
TEMP5     =     $F3
TEMP6     =     $F4
TEMP7     =     $F5
TEMP8     =     $F6
TEMP9     =     $F7
TEMP10    =     $F8
                                   ;
* RAM FOR DISPLAYING 6 SPRITES->
* NOTE-THIS RAM PLUS TEMP1,2,3 DOES
* NOT CONFLICT WITH SA DISPLAY RAM.
*******************************
PD100K    =     $F2
PD10K     =     $F4
PD1K      =     $F6
PD100     =     $F8
PD10      =     $FA
PD1       =     $FC
                                   ;
```

```
*******************************
*                             *
*    *****     *****     *    *    *
*    *         *   *     *    *    *
*    ***       *   *     *    *    *
*    *         *   *     *    *    *
*    *         *   **    *    *    *
*    *****     ***** *   ******    *
*                             *
*******************************
*      COLOR    EQUATES       *
*-----------------------------*
                                  ;
BLACK     =     0
WHITE     =     $0E
RED       =     $22
YELLOW    =     $28
GREEN     =     $34
ORANGE    =     $28
BLUE      =     $B6
PURPLE    =     $68
BROWN     =     $12
GOLD      =     $16
LBLUE     =     $96
                                  ;
SCRCOL    =     BLACK             ;BKGND COLOR OF ORCHARDS.
                                  ;
*******************************
*  DIRECTION EQUATES ->         *
*------------------------------
* STARTING IDXS FOR EACH DIR IN DIRTBL->
UPI       =     0
DOWNI     =     4
RIGHTI    =     8
LEFTI     =     12
                                  ;
* DIRECTION VALUES-->
UPD       =     0
DOWND     =     1
RIGHTD    =     2
LEFTD     =     3
                                  ;
*******************************
*     GAME MODES-->           *
*******************************
RESUM     =     $80               ;RESUME PLAY MODE(1 SEC BLACK).
XTRADO    =     $70               ;EXTRA MR.DO.WON.
TRACK     =     $50               ;ALT CPMD+ ORCH.
GAMOVR    =     $40
SELECT    =     $30               ;SELECT MODE.
DODEAD    =     $20
PLAY      =     $10
                                  ;
*******************************
*  VERT INTERVAL TIMER EQUATES *
*------------------------------
* TOTAL PICTIME (TITLE & ORCH)=178 LINES.
                                  ;44 LINES.
TOPTIM    =     $A9+10            ;TOPVI TIMER VALUE.
                                  ;51 LINES.
MIDTIM    =     $AD+15            ;TIME TO PAINT SCORE,EXTRA + SET RAM UP.
                                  ;39 LINES.
BOTTIM    =     $9F+13            ;BOTVI TIMER VALUE.
                                  ;---------
```

```
                    >273                              ;312 LINES.
                         BOTVI     =     $202E
                                   ORG   $2FFC
                                                      ;MICE VECTORS.
2FFC: 00 30                        DA    $3000
2FFE: FE 3F                        DA    END
```

```
                 ******************************
                 * TOP VERTICAL INTERVAL      *
                 ******************************
                          PUT  MR.DO.TOPVI
                 */MR.DO.TOPVI  LASTED: 8/14/83
                 *
                 ******************************
                 *APPLES GET 1/3 FRAMES IF 2 DIGS
                 *ON ,ELSE 1/2 FRAMES IF 1 DIG ON.
                 ******************************
                 * BANK SWITCH FROM BOTVI->
                 *--------------------------
3000: EA                  NOP
3001: EA                  NOP
3002: EA                  NOP
3003: 4C 12 30            JMP  TOP2         ;CONT W/TOPVI.
3006: EA                  NOP
                 * BANK SWITCH TO BOTVI-->
                 *---------------------------
                 BVISW
3007: AD F8 FF            LDA  $FFF8
300A: 4C 2E 20            JMP  BOTVI
300D: EA                  NOP
                 * SWITCH TO BANK 1 INIT RTN->
                 *------------------------------
                 INITSW
300E: EA                  NOP
300F: AD F8 FF            LDA  $FFF8
```

```
                 TOP2
3012: EA                 NOP
3013: 20 2B 35           JSR  MUSIC       ;MAINTAIN SOUNDS.

                 * KEEP A NUM 0,1,2 FOR MUX MGMT.
                 ********************************
3016: A6 CE              LDX  MUX
3018: E8                 INX
3019: E0 03              CPX  #3
301B: D0 02              BNE  OK2         ;ONLY 0,1,2.
301D: A2 00              LDX  #0
                 OK2
301F: 86 CE              STX  MUX
                                          ;
                 ********************************
                 * ANIMATION CHECKPOINT-->      *
                 ********************************
3021: A5 84              LDA  FRAMEL
3023: 29 0F              AND  #$0F
3025: C9 0F              CMP  #$0F
3027: D0 2B              BNE  ANIM9       ;J NT TIME TO ANIMATE.
                 * ANIMATE BOTH DIGGERS->
                 ********************************
3029: A2 01              LDX  #1
                 TWODIG
302B: B5 C4              LDA  DIGDAT,X
302D: 29 01              AND  #1
302F: F0 05              BEQ  UPPTR
3031: D6 C4              DEC  DIGDAT,X
3033: 4C 38 30           JMP  NDIG
                 UPPTR
3036: F6 C4              INC  DIGDAT,X
                 NDIG
3038: CA                 DEX
3039: 10 F0              BPL  TWODIG
                                          ;
                 ********************************
                 * ANIMATE MR DO-->             *
                 ********************************
303B: A5 8E              LDA  ANIM8
303D: 29 01              AND  #1
303F: AA                 TAX
3040: A5 8E              LDA  ANIM8
3042: 49 01              EOR  #1
3044: 85 8E              STA  ANIM8
3046: A0 03              LDY  #3          ;LEFT DIR.
3048: BD 48 32           LDA  MDPTL,X
304B: C4 B8              CPY  LASTJY
304D: F0 03              BEQ  LSTLFT      ;J LAST MOVE WAS LEFT.
304F: BD 4A 32           LDA  MDPTR,X
                 LSTLFT
3052: 85 C3              STA  DODAT
                 ANIM9
                 ********************************
                 * DO SCREEN PROCESSING ONLY IF *
                 *  ORCHARD IS TO BE SHOWN->    *
                 ********************************
3054: A5 DA              LDA  MODE
3056: C9 10              CMP  #PLAY
3058: F0 11              BEQ  ORK
305A: C9 20              CMP  #DODEAD
305C: F0 0D              BEQ  ORK
305E: C9 50              CMP  #TRACK
3060: D0 06              BNE  NORK
3062: A5 85              LDA  FRAMEH
```

```
3062: A5 83           LDA  FRAMER
3064: 29 03           AND  #3
3066: D0 03           BNE  ORK
                NORK
3068: 4C 5C 32        JMP  TITLE      ;SKIP IT.
                ORK
                ********************************
                * POS FM FOR CHANNEL SELECT->  *
                ********************************
306B: A5 8B           LDA  ALPHA
306D: 29 07           AND  #7
306F: AA              TAX
3070: BD EC 3C        LDA  LETPOS,X
3073: A8              TAY
3074: B9 E6 35        LDA  POSTBL,Y
3077: A2 04           LDX  #4
3079: 20 D3 3C        JSR  POS
                                      ;
```

```
                    ********************************
                    * SET UP SA DISPLAY RAM-->     *
                    ********************************
                    * SET UP NULLS FOR ALL SA RAM-->
                    *------------------------------
                    * ALL SA IMGS ARE ON IMG1 PAGE FOR NOW-->
                                                  ;
                    SETRAM
307C: A9 00                 LDA   #0
307E: 85 DC                 STA   PTR         ;INIT HI PAGE TO IMG1.
3080: A0 02                 LDY   #2          ;FAKE POF.
3082: A9 E4                 LDA   #<NULL1
3084: A2 07                 LDX   #7          ;8 BANDS
                    ISA
3086: 95 DE                 STA   LODATA,X
3088: 94 E7                 STY   APOF,X
308A: CA                    DEX
308B: 10 F9                 BPL   ISA
                                                  ;
                    * TEST IF FALLING APPLE FRAME->
                    *------------------------------
308D: A5 84                 LDA   FRAMEL
308F: 29 03                 AND   #3          ;BOTH B0+B1 SET?
3091: C9 03                 CMP   #3
3093: D0 2C                 BNE   NORMAP      ;JP NO.
                                              ;ELSE FALLING APPLE IS ELIGIBLE->
3095: A5 8D                 LDA   APFALL
3097: 30 28                 BMI   NORMAP      ;JP NONE FALLING.
3099: 4A                    LSR
309A: 4A                    LSR
309B: 4A                    LSR
309C: 4A                    LSR
309D: AA                    TAX               ;X=WHICH AP IS FALLING.
309E: 86 F1                 STX   TEMP3       ;SV IT.
30A0: B5 D0                 LDA   APBAND,X
30A2: 4A                    LSR
30A3: 4A                    LSR
30A4: 4A                    LSR
30A5: 4A                    LSR
30A6: A8                    TAY               ;AP BAND.
30A7: B5 D0                 LDA   APBAND,X    ;GET IMG PTR X2.
30A9: 0A                    ASL
30AA: 29 1F                 AND   #$1F
30AC: AA                    TAX
30AD: BD 3C 32              LDA   APIMG,X     ;GET IMG ADDR LO.
30B0: 99 DE 00              STA   LODATA,Y
                                              ;SET PG PTR->
30B3: BD 3D 32              LDA   APIMG+1,X
30B6: A6 F1                 LDX   TEMP3       ;GET WHICH APPLE.
30B8: B5 D4                 LDA   APPOF,X     ;FALLING AP POF.
30BA: AA                    TAX
30BB: BD E6 35              LDA   POSTBL,X
30BE: 99 E7 00              STA   APOF,Y
                                                  ;
                    * SET ALL APPLES UP FOR DISPLAY
                    *  UNLESS FALLING AP ALREADY THERE
                    ********************************
                    NORMAP
30C1: A2 03                 LDX   #3          ;APPLE COUNT.
30C3: 86 DD                 STX   BAND        ;TEMP.
                    APRAM
30C5: A6 DD                 LDX   BAND
30C7: B5 D0                 LDA   APBAND,X
30C9: 30 26                 BMI   APR50       ;JP NO APPLE ON.
30CB: 4A                    LSR
30CC: 4A                    LSR
```

```
30CC: 4A                      LSR
30CD: 4A                      LSR
30CE: 4A                      LSR                ;GET BAND.
30CF: A8                      TAY                ;AP BAND NUM.
30D0: B9 DE 00                LDA  LODATA,Y
30D3: C9 E4                   CMP  #<NULL1
30D5: D0 1A                   BNE  APR50         ;JP SOMETHING ELSE THERE.
30D7: B5 D0                   LDA  APBAND,X
30D9: 29 0F                   AND  #$0F          ;KP IMG IDX.
30DB: 0A                      ASL                ;X 2.
30DC: AA                      TAX
30DD: BD 3C 32                LDA  APIMG,X
30E0: 99 DE 00                STA  LODATA,Y
                                                 ;SET PAGE PTR->
30E3: BD 3D 32                LDA  APIMG+1,X
30E6: A6 DD                   LDX  BAND          ;GET WHICH APPLE.
30E8: B5 D4                   LDA  APPOF,X
30EA: AA                      TAX
30EB: BD E6 35                LDA  POSTBL,X
30EE: 99 E7 00                STA  APOF,Y
                     APR50
30F1: C6 DD                   DEC  BAND
30F3: 10 D0                   BPL  APRAM
                                                 ;
```

```
                * SET UP DIGGERS/BADGUYS-->
                ******************************
30F5: 20 8C 31           JSR  COMPET      ;ARE DIGS COMPETING 4 DISPLAY?
30F8: F0 1B              BEQ  DIG15       ;JP YES.
                                          ;
                * DIGGERS DO NOT COMPETE-->
                ******************************
                ******************************
                * REV 15 MUX CODE-->         *
                * APPLES MUX AT 1/3 OR 1/2 IF  *
                * ONLY 1 DIG COMPETING.      *
                ******************************
30FA: A5 84              LDA  FRAMEL
30FC: 29 01              AND  #1
30FE: D0 71              BNE  DIG50       ;J APPLE FRAME(1/2).
                                          ;
3100: A5 BE              LDA  DIGBAND
3102: 30 05              BMI  DIG12       ;J IF OFF.
3104: A2 00              LDX  #0
3106: 20 C0 31           JSR  TURNON
                DIG12
3109: A5 BF              LDA  DIGBAND+1
310B: 30 05              BMI  DIG13       ;J IF OFF.
310D: A2 01              LDX  #1
310F: 20 C0 31           JSR  TURNON
                DIG13
3112: 4C 89 31           JMP  DIG99
                                          ;
                * ONLY 1 DIGGER CAN BE SHOWN->
                ******************************
                DIG15
                ******************************
                *  REV 15 MUX CODE--> CONT.    *
3115: A5 CE              LDA  MUX
3117: F0 16              BEQ  APLFR5      ;J APPLE FRAME(1/3).
                                          ;
3119: A2 01              LDX  #1
311B: A5 84              LDA  FRAMEL
311D: 29 02              AND  #2          ;B1 DIG GETS PRIORITY.
311F: D0 01              BNE  DIG17       ;JP FOR DIG2.
3121: CA                 DEX
                DIG17
3122: B5 BE              LDA  DIGBAND,X
3124: 20 C0 31           JSR  TURNON      ;SET UP DIG2.
                DIG18
3127: 4C 89 31           JMP  DIG99
                                          ;
                * APPLES HAVE PRIORITY THIS FRAME->
                * BUT SET UP ANY DIGS POSSIBLE *
                *W/O CONFLICT-->             *
                ******************************
                APLFRM
312A: 20 8C 31           JSR  COMPET      ;DIGS COMPETING?
312D: D0 42              BNE  DIG50       ;JP NO.
                                          ;ONLY 1 MIGHT BE ABLE TO SHOW.
                APLFR5
312F: A5 84              LDA  FRAMEL
3131: 29 02              AND  #2
3133: D0 1E              BNE  DIG40       ;JP TO TRY DIG2 1ST.
3135: A2 00              LDX  #0
3137: 20 1E 32           JSR  TRYON       ;TRY TO TURN ON DIG1.
313A: D0 08              BNE  DIG33       ;JP CAN'T BE TURNED ON.
313C: A2 00              LDX  #0          ;DIG 1 ON.
313E: 20 C0 31           JSR  TURNON      ;TURN HIM ON.
3141: 4C 89 31           JMP  DIG99
```

```
                DIG33
3144: A2 01                 LDX   #1
3146: 20 1E 32              JSR   TRYON       ;SEE IF DIG 2 CAN BE TURNED ON.
3149: D0 3E                 BNE   DIG99       ;JP CAN'T TURN HIM ON EITHER.
314B: A2 01                 LDX   #1          ;DIG2 ON.
314D: 20 C0 31              JSR   TURNON      ;TURN HIM ON.
3150: 4C 89 31              JMP   DIG99
                                              ;
                DIG40
3153: A2 01                 LDX   #1
3155: 20 1E 32              JSR   TRYON       ;SEE IF DIG 2 CAN BE TURNED ON.
3158: D0 08                 BNE   DIG45       ;JP CAN'T TURN HIM ON.
315A: A2 01                 LDX   #1          ;DIG 2 ON.
315C: 20 C0 31              JSR   TURNON
315F: 4C 89 31              JMP   DIG99
                DIG45
3162: A2 00                 LDX   #0
3164: 20 1E 32              JSR   TRYON       ;SEE IF DIG1 CAN BE ON.
3167: D0 20                 BNE   DIG99       ;JP CAN'T TURN HIM ON EITHER.
3169: A2 00                 LDX   #0          ;DIG 1 ON.
316B: 20 C0 31              JSR   TURNON
316E: 4C 89 31              JMP   DIG99
                                              ;
                * BOTH DIGS MAY BE SHOWN IF NO APPLE COMPETITION->
                ******************************
                DIG50
3171: A2 00                 LDX   #0
3173: 20 1E 32              JSR   TRYON       ;SEE IF DIG 1 CAN BE ON..
3176: D0 05                 BNE   DIG60       ;JP CAN'T TURN ON.
3178: A2 00                 LDX   #0          ;DIG 1 ON.
317A: 20 C0 31              JSR   TURNON      ;TURNON.
                DIG60
317D: A2 01                 LDX   #1
317F: 20 1E 32              JSR   TRYON       ;SEE IF DIG 2 CAN BE ON.
3182: D0 05                 BNE   DIG99       ;JP CAN' TURN ON.
3184: A2 01                 LDX   #1          ;DIG 2 ON.
3186: 20 C0 31              JSR   TURNON
                                              ;
                DIG99
3189: 4C 5C 32              JMP   TITLE
```

```
                  *  DISPLAY SORTING SUBROUTINES->
                  ******************************
                  * SEE IF 2 DIGGERS COMPETE FOR DISPLAY->
                  ******************************
                  COMPET
318C: A5 BE                LDA  DIGBAND
318E: 10 01                BPL  COMP1        ;JP ON.
3190: 60                   RTS               ;RET NE.
                  COMP1
3191: 29 70                AND  #$70
3193: 85 EF                STA  TEMP1        ;SV BAND.
3195: A5 BF                LDA  DIGBAND+1
3197: 10 01                BPL  COMP15       ;JP ON.
3199: 60                   RTS               ;RET NE.
                  COMP15
319A: 29 70                AND  #$70
319C: 38                   SEC
319D: E5 EF                SBC  TEMP1
319F: D0 01                BNE  COMP2        ;JP NOT ON SAME BAND.
31A1: 60                   RTS               ;RET W/EQ.
                  COMP2
31A2: C9 10                CMP  #$10
31A4: D0 0C                BNE  COMP3
                                             ;
                  * DIG2 IS 1 BAND ABOVE DIG1->
                  ******************************
31A6: A5 BF                LDA  DIGBAND+1
31A8: 29 0F                AND  #$0F         ;GET LN.
31AA: D0 03                BNE  CPETE        ;J NZ.
31AC: A9 01                LDA  #1
31AE: 60                   RTS
                  CPETE
31AF: A9 00                LDA  #0
31B1: 60                   RTS               ;RET W/EQ.
                  COMP3
31B2: C9 F0                CMP  #$F0
31B4: F0 01                BEQ  CPETE2
31B6: 60                   RTS               ;ELSE RET NO COMPETE.
                  * DIG1 IS 1 BAND ABOVE DIG2->
                  ******************************
                  CPETE2
31B7: A5 BE                LDA  DIGBAND
31B9: 29 0F                AND  #$0F

31BB: D0 F2                BNE  CPETE        ;RET W/Y COMPETING.
31BD: A9 01                LDA  #1
31BF: 60                   RTS
                                             ;
                  * TURN ON A DIG IN DISPLAY RAM->
                  * IN X=IDX TO WHICH DIGGER TO TURN ON.
                  ******************************
                  TURNON
31C0: B5 C4                LDA  DIGDAT,X     ;GET DIGIMG IDX.
31C2: 29 0F                AND  #$0F
31C4: A8                   TAY
31C5: A9 00                LDA  #0
31C7: C0 04                CPY  #4           ;IS SPRITE ON 1ST PAGE IMG'S?
31C9: 90 02                BCC  FIRST        ;J ON PAGE 1.
31CB: A9 01                LDA  #1
                  FIRST
31CD: 85 F1                STA  TEMP3        ;SV MASK FOR PTR.
                                             ;
31CF: B9 4C 32             LDA  DIGIMG,Y
31D2: 85 EF                STA  TEMP1        ;SV DATA PTR.(LO)
31D4: B5 BE                LDA  DIGBAND,X
```

```
31D6: 85 F0              STA  TEMP2       ;SV BAND/LN.
31D8: 4A                 LSR
31D9: 4A                 LSR
31DA: 4A                 LSR
31DB: 4A                 LSR
31DC: A8                 TAY              ;BAND.
31DD: 18                 CLC
                PTRBIT
31DE: 88                 DEY
31DF: 30 06              BMI  PTRDON
31E1: 18                 CLC
31E2: 06 F1              ASL  TEMP3       ;SET UP BIT FOR PAGE PTR.
31E4: 4C DE 31           JMP  PTRBIT
                PTRDON
31E7: A8                 TAY              ;GET BAND NUM.
31E8: A5 F1              LDA  TEMP3       ;GET ADJUSTED MASK.
31EA: 05 DC              ORA  PTR
31EC: 85 DC              STA  PTR
                                          ;
                                          ;SET UP POS FOR DISPLAY.
31EE: B5 C1              LDA  DIGPOF,X
31F0: AA                 TAX              ;
31F1: BD E6 35           LDA  POSTBL,X
31F4: 99 E7 00           STA  APOF,Y
                                          ;
31F7: A5 F0              LDA  TEMP2       ;GET BAND/LN.
31F9: 29 0F              AND  #$0F
31FB: D0 06              BNE  TURN5       ;JP NOT W/I A BAND.
31FD: A5 EF              LDA  TEMP1       ;GET DATA PTR.
31FF: 99 DE 00           STA  LODATA,Y
3202: 60                 RTS
                ********************************
                * NEED TWO BANDS FOR OBJ-->
                ********************************
                TURN5
3203: AA                 TAX              ;X=LN OFFSET.
3204: BD 67 36           LDA  TOPOFF,X
3207: 18                 CLC
3208: 65 EF              ADC  TEMP1       ;ADD DATA PTR.
320A: 99 DE 00           STA  LODATA,Y    ;SV DIG DATA PTR LO.
320D: A5 EF              LDA  TEMP1       ;GET DATA PTR.
320F: 38                 SEC
3210: FD 77 36           SBC  BOTOFF,X
3213: 99 DD 00           STA  LODATA-1,Y  ;SV DIG DATA PTR LO.
3216: A5 F1              LDA  TEMP3       ;GET PTR MASK.
3218: 4A                 LSR              ;SHIFT FOR DOWN 1 BAND.
3219: 05 DC              ORA  PTR
321B: 85 DC              STA  PTR
321D: 60                 RTS
                * TEST IF NULLS WHERE A DIG IS->
                * IN X= WHICH DIG TO TEST FOR.
                ********************************
                TRYON
321E: B5 BE              LDA  DIGBAND,X
3220: 10 01              BPL  TRY1        ;JP IF ON.
3222: 60                 RTS              ;RET NE.
                TRY1
3223: 4A                 LSR
3224: 4A                 LSR
3225: 4A                 LSR
3226: 4A                 LSR
3227: A8                 TAY              ;BAND.
3228: B5 BE              LDA  DIGBAND,X
322A: 29 0F              AND  #$0F        ;W/I 1 BAND?
322C: F0 08              BEQ  TRY9        ;JP YES.
322E: B9 DD 00           LDA  LODATA-1,Y
```

```
3231: C9 E4               CMP   #<NULL1
3233: F0 01               BEQ   TRY9          ;JP LOWER BAND OK.
3235: 60                  RTS
                TRY9
3236: B9 DE 00            LDA   LODATA,Y
3239: C9 E4               CMP   #<NULL1
323B: 60                  RTS
                                              ;
```

```
                 * APPLE IMAGE PTR TABLE->
                 ******************************
                 * BYTE 1=IMG ADR LO, BYTE 2=IMG PAGE.
                 APIMG
                                                ;APPLE SITTING->
323C: 00 00                     DFB  <APPLE1,0
                                                ;AP ROCKING LEFT->
323E: 0E 00                     DFB  <APPLE2,0
                                                ;APPLE ROCKING RIGHT->
3240: 1C 00                     DFB  <APPLE3,0
                                                ;APPLE FALLING ->
3242: 00 00                     DFB  <APPLE1,0
                                                ;APPLE BREAKING STAGE 1.->
3244: 2A 00                     DFB  <APPLE4,0
                                                ;APPLE BREAKING STAGE 2->
3246: 38 00                     DFB  <APPLE5,0
                                                ;
                                                ;DO FACES LEFT->
                 MRDOIMG
                 MDPTL
3248: 22 44                     DFB  <MRDOLL,<MRDORL
                                                ;DO FACES RIGHT->
                 MDPTR
324A: 66 88                     DFB  <MRDORR,<MRDOLR
                 DIGIMG
324C: 4F                        DFB  <DIGLR
324D: 70                        DFB  <DIGLL
                                                ;REALLY DIGGING IMG->
324E: 92                        DFB  <DUGLL
324F: B4                        DFB  <DUGLR
                                                ;
                 * DIGGING FACING LEFT->
3250: 00                        DFB  <DUGRR
3251: 20                        DFB  <DUGRL
                                                ;
                 LETIMG
3252: 49                        DFB  <LETRE     ;LETTER E
3253: 49                        DFB  <LETRE
3254: 6A                        DFB  <LETRX     ;LETTER X
3255: 6A                        DFB  <LETRX
3256: 8B                        DFB  <LETRT     ;LETTER T
3257: 8B                        DFB  <LETRT
3258: AC                        DFB  <LETRR     ;LETTER R
3259: AC                        DFB  <LETRR
325A: CD                        DFB  <LETRA     ;LETTER A
325B: CD                        DFB  <LETRA
                                                ;
```

```
                 ********************************
                 * TITLE SCREEN PAINTING FILE   *
                 ********************************
                              PUT   MR.DO.TITLE
                 */MR.DO.TITLE  LASTED 9/12/83.
                 ********************************
                 TITLE
                 TOPEND
325C: AD 84 02                LDA   TIMER
325F: 30 FB                   BMI   TOPEND
                                               ;
                 *   TURN GUN BACK ON-->
                 ********************************
3261: A9 40                   LDA   #$40
3263: 85 02                   STA   ATWAIT
3265: 85 01                   STA   ATBLNK     ;GUN ON.
                                               ;
3267: A9 BC                   LDA   #MIDTIM
3269: 8D 96 02                STA   TIME64     ;SET TIMER.
326C: A5 DA                   LDA   MODE
326E: C9 30                   CMP   #SELECT
3270: D0 0D                   BNE   TEST2
                                               ;
                 *   "MR DO!   GAME   1" -->
                 ********************************
3272: A9 B6                   LDA   #<MRDOT1
3274: A2 C3                   LDX   #<GAMETB
3276: A0 BD                   LDY   #<NULLTB
3278: 4C CE 32                JMP   TITL12
                                               ;
                 *   MR DO DANCE SPD BY GAME NUM->
                 GAMSPD
327B: 20 10 08
327E: 04                      DFB   $20,$10,$08,$04
                                               ;
                 TEST2
327F: C9 10                   CMP   #PLAY
3281: F0 1A                   BEQ   ORKSCR
3283: C9 20                   CMP   #DODEAD
3285: F0 16                   BEQ   ORKSCR
                                               ;
3287: C9 40                   CMP   #GAMOVR
3289: F0 34                   BEQ   TITLE1     ;JP IF GAME OVER SCREEN.
328B: C9 70                   CMP   #XTRADO
328D: F0 11                   BEQ   TITLE0
                                               ;
328F: C9 80                   CMP   #RESUM
3291: F0 60                   BEQ   TITLE3
                                               ;
                                               ;
3293: C9 50                   CMP   #TRACK
3295: D0 06                   BNE   ORKSCR     ;J N.
                                               ;
3297: A5 85                   LDA   FRAMEH
3299: 29 03                   AND   #3
329B: F0 4D                   BEQ   TITLE2     ;SHOW COLECO PRES MRDO.
                 ORKSCR
329D: 4C 8B 33                JMP   ORCHARD
                                               ;
                 * SET UP FOR "EXTRA MR DO!"
                 ********************************
                 TITLE0
32A0: A9 CF                   LDA   #<LETTBL   ;EXTRA.
32A2: 85 EC                   STA   TEMP11
32A4: A9 B6                   LDA   #<MRDOT1   ;MR.DO!
```

```
32A6: 85 ED              STA  TEMP12
32A8: A9 BD              LDA  #<NULLTB   ;NULL
32AA: 85 EE              STA  TEMP13
                                         ;ANIM8 MR DO IMG->
32AC: A0 66              LDY  #<MRDORR
32AE: A5 84              LDA  FRAMEL
32B0: 29 10              AND  #$10
32B2: D0 02              BNE  IMG5
32B4: A0 88              LDY  #<MRDOLR
               IMG5
32B6: 84 EA              STY  TEMP14
32B8: A9 39              LDA  #>MRDOLL
32BA: 85 EB              STA  TEMP15
32BC: 4C 03 33           JMP  TITLE9
                                         ;
               *    TITLE  SCREEN
               ********************************
               TITLE1
32BF: A5 85              LDA  FRAMEH
32C1: 29 03              AND  #3
32C3: F0 03              BEQ  TITL11
32C5: 4C 8B 33           JMP  ORCHARD
                                         ;
               *    "GAME   OVER" SCREEN->
               ********************************
               TITL11
32C8: A9 BD              LDA  #<NULLTB   ;NULL
32CA: A2 C3              LDX  #<GAMETB   ;GAME
32CC: A0 C9              LDY  #<OVERTB   ;OVER
                                         ;
               *   SET UP DANCE SPEED-->
               ********************************
               TITL12
32CE: 85 EC              STA  TEMP11
32D0: 86 ED              STX  TEMP12
32D2: 84 EE              STY  TEMP13
32D4: A0 22              LDY  #<MRDOLL
32D6: A5 84              LDA  FRAMEL
32D8: A6 80              LDX  GAME
32DA: 3D 7B 32           AND  GAMSPD,X
32DD: D0 02              BNE  IMG6
32DF: A0 44              LDY  #<MRDORL
               IMG6
32E1: 84 EA              STY  TEMP14
32E3: A9 39              LDA  #>MRDOLL
32E5: 85 EB              STA  TEMP15
32E7: 4C 03 33           JMP  TITLE9
                                         ;
               *   "COLECO PRESENTS MR DO!" SCREEN->
               ********************************
               TITLE2
32EA: A9 AA              LDA  #<COLECO   ;COLECO
32EC: A2 B0              LDX  #<PRESNT   ;PRESENTS
32EE: A0 B7              LDY  #<MRDOTB   ;MRDO.
32F0: 4C CE 32           JMP  TITL12
               TITLE3
32F3: A9 BD              LDA  #<NULLTB
32F5: 85 EC              STA  TEMP11
32F7: 85 ED              STA  TEMP12
32F9: 85 EE              STA  TEMP13
32FB: A9 34              LDA  #<NULLB
32FD: 85 EA              STA  TEMP14
32FF: A9 39              LDA  #>NULLB
3301: 85 EB              STA  TEMP15     ;NO DO.
```

```
                 TITLE9
                                         ;
3303: A9 86                LDA  #$86
3305: 85 06                STA  ATACOL
3307: 85 07                STA  ATBCOL
                                         ;
                 *  SET UP FOR TOP WORD -->
                 ******************************
3309: A5 EC                LDA  TEMP11   ;GET TBL PTR LO.
330B: A2 3C                LDX  #>DATA2
330D: 20 DB 39             JSR  SPRIT6
                                         ;
                 HOLDUP
3310: AD 84 02             LDA  TIMER
3313: 30 FB                BMI  HOLDUP
                                         ;
3315: 85 02                STA  ATWAIT
                                         ;
3317: 20 96 3F             JSR  SCORE    ;PAINT TOP WORD.
                                         ;
                                         ;
331A: A9 D4                LDA  #$D4
331C: 85 06                STA  ATACOL
331E: 85 07                STA  ATBCOL
                                         ;
                 *  SET UP FOR MIDDLE WORD-->
                 ******************************
3320: A5 ED                LDA  TEMP12
3322: A2 3C                LDX  #>DATA2
3324: 20 DB 39             JSR  SPRIT6
                                         ;
3327: A2 14                LDX  #20
                 HOLD7
3329: 85 02                STA  ATWAIT
332B: CA                   DEX
332C: 10 FB                BPL  HOLD7
                                         ;
332E: 20 96 3F             JSR  SCORE
                                         ;
3331: A9 34                LDA  #$34
3333: 85 06                STA  ATACOL
3335: 85 07                STA  ATBCOL
                                         ;
                 * SET UP FOR BOTTOM WORD-->
                 ******************************
3337: A5 EE                LDA  TEMP13
3339: A2 3C                LDX  #>DATA2
333B: 20 DB 39             JSR  SPRIT6
                                         ;
333E: A2 1C                LDX  #28
                 HOLD9
3340: 85 02                STA  ATWAIT
3342: A5 DA                LDA  MODE
3344: C9 30                CMP  #SELECT
3346: D0 0B                BNE  NOTSEL
                                         ;SET UP A DIGIT->
3348: A4 80                LDY  GAME     ;GET NUM.
334A: B9 E9 38             LDA  SCORTB+1,Y
334D: 85 F8                STA  PD100
334F: A9 38                LDA  #>DIGITS
3351: 85 F9                STA  PD100+1
                 NOTSEL
3353: CA                   DEX
3354: 10 EA                BPL  HOLD9
                                         ;
```

```
3356: 20 96 3F          JSR   SCORE
                                             ;
3359: A2 2D             LDX   #45
                HOLD10
335B: 85 02             STA   ATWAIT
335D: CA                DEX
335E: 10 FB             BPL   HOLD10
                                             ;
                                             ;
3360: A9 0E             LDA   #WHITE
3362: 85 06             STA   ATACOL
                                             ;
                * PAINT A MR DO IMAGE--->
                ******************************
3364: A9 00             LDA   #0             ;PAINT A DO.
3366: 85 25             STA   ATASEL
3368: 85 26             STA   ATBSEL         ;SELECT IMMEDIATE MODE.
336A: 85 04             STA   ATACTL
                                             ;
336C: A4 C0             LDY   DOPOF
336E: B9 E6 35          LDA   POSTBL,Y
3371: A2 00             LDX   #0             ;SA.
3373: 20 D3 3C          JSR   POS
3376: A0 0F             LDY   #15
                DO1
3378: B1 EA             LDA   (TEMP14),Y ;GET IMG.
337A: 85 02             STA   ATWAIT
337C: 85 1B             STA   ATADAT
337E: 88                DEY
337F: 10 F7             BPL   DO1
                                             ;
                                             ;DELAY
3381: A2 15             LDX   #21
                WAIT5
3383: 85 02             STA   ATWAIT
3385: CA                DEX
3386: 10 FB             BPL   WAIT5
                                             ;
3388: 4C 07 30          JMP   BVISW
```

```
                  ********************************
                  * ORCHARD SCREEN SETUP FILE    *
                  ********************************
                           PUT  MR.DO.DISPLAY
                  * MR.DO.DISPLAY LASTED 9/14/83.
                  ********************************
                  *        MAIN DISPLAY
                  * SHOW SCORE,EXTRA & ORCHARD->
                  ********************************
                  *
                  *   PAINT 6 DIGIT SCORE
                  *----------------------
                  ORCHARD
338B: 85 2B                STA  ATREMV      ;CLR INCR FOR FM.
                                            ;
338D: A9 38                LDA  #>DATA1
338F: 85 F3                STA  PD100K+1
3391: 85 F5                STA  PD10K+1
3393: 85 F7                STA  PD1K+1
3395: 85 F9                STA  PD100+1
3397: 85 FB                STA  PD10+1
3399: 85 FD                STA  PD1+1
                                            ;
339B: A9 90                LDA  #<ZERO
339D: 85 FC                STA  PD1         ;LO DIG = 0.
339F: A9 E0                LDA  #<BLANK
33A1: 85 F2                STA  PD100K      ;HI DIG=BLANK.
33A3: A5 82                LDA  SCORLO
33A5: 29 0F                AND  #$0F
33A7: A8                   TAY
33A8: B9 E8 38             LDA  SCORTB,Y
33AB: 85 FA                STA  PD10
33AD: A5 82                LDA  SCORLO
33AF: 4A                   LSR
33B0: 4A                   LSR
33B1: 4A                   LSR
33B2: 4A                   LSR
33B3: A8                   TAY
33B4: B9 E8 38             LDA  SCORTB,Y
33B7: 85 F8                STA  PD100
                                            ;
33B9: A5 83                LDA  SCORHI
33BB: 29 0F                AND  #$0F
33BD: A8                   TAY
33BE: B9 E8 38             LDA  SCORTB,Y
33C1: 85 F6                STA  PD1K
33C3: A5 83                LDA  SCORHI
33C5: 4A                   LSR
33C6: 4A                   LSR
33C7: 4A                   LSR
33C8: 4A                   LSR
33C9: A8                   TAY
33CA: B9 E8 38             LDA  SCORTB,Y
33CD: 85 F4                STA  PD10K
                                            ;
33CF: A9 28                LDA  #YELLOW
33D1: 85 06                STA  ATACOL
33D3: 85 07                STA  ATBCOL
33D5: 20 96 3F             JSR  SCORE       ;PAINT NUMBERS
                                            ;
                  * PAINT "EXTRA" W/REV VIDEO FOR
                  *  LETTERS ALREADY GOTTEN-->
                  ********************************
33D8: A0 05                LDY  #5
33DA: A2 0B                LDX  #11
```

```
33DC: A5 8B             LDA   ALPHA        ;GET ALF FLAGS.
33DE: 85 EF             STA   TEMP1
                  ALFSET
33E0: A9 3C             LDA   #>DATA2
33E2: 95 F2             STA   PD100K,X
33E4: CA                DEX
33E5: 06 EF             ASL   TEMP1
33E7: B9 CF 39          LDA   LETTBL,Y
33EA: 90 03             BCC   NORM
33EC: B9 D5 39          LDA   REVTBL,Y     ;GET REV VIDEO.
                  NORM
33EF: 95 F2             STA   PD100K,X
33F1: CA                DEX
33F2: 88                DEY
33F3: 10 EB             BPL   ALFSET
                                           ;
                  *PAINT CHANNEL SELECT W/FLD MIS->
                  *******************************
33F5: A9 02             LDA   #2
33F7: A0 05             LDY   #5           ;PAL (6 LINES)
                  PAL6
33F9: 85 02             STA   ATWAIT
33FB: 88                DEY
33FC: 10 FB             BPL   PAL6         ;DELAY 6 LINES.
                                           ;
33FE: 85 1F             STA   ATENFM       ;FM ON.
                                           ;
3400: A9 FF             LDA   #$FF
3402: 85 0F             STA   ATFR2        ;THIN LINE.
3404: A9 B2             LDA   #$B2         ;DRK BLUE.
3406: 85 08             STA   ATFCOL
3408: A9 28             LDA   #YELLOW
340A: 85 06             STA   ATACOL
340C: 85 07             STA   ATBCOL
340E: A9 01             LDA   #1
                                           ;
3410: 85 02             STA   ATWAIT
3412: 85 02             STA   ATWAIT       ;PAL(3)
3414: 85 02             STA   ATWAIT
3416: 85 02             STA   ATWAIT
3418: 85 0F             STA   ATFR2
                                           ;DO 6 SPRITES W/O POS->
341A: 20 BA 3F          JSR   SCORE1       ;PAINT EXTRA.
                                           ;
341D: A2 FF             LDX   #$FF
341F: 85 02             STA   ATWAIT
3421: 86 0F             STX   ATFR2        ;THIN LINE.
3423: A9 00             LDA   #0
                                           ;
3425: 85 1F             STA   ATENFM       ;FM OFF.
3427: A9 00             LDA   #0
3429: 85 25             STA   ATASEL
342B: 85 26             STA   ATBSEL       ;RESET SELECT REGS.
342D: 85 04             STA   ATACTL
342F: 85 05             STA   ATBCTL
                                           ;
3431: 85 02             STA   ATWAIT       ;PAL(3)
3433: 85 02             STA   ATWAIT
3435: 85 02             STA   ATWAIT
3437: 85 02             STA   ATWAIT
3439: A9 00             LDA   #BLACK
343B: 85 08             STA   ATFCOL       ;THIN LINE OFF.
                                           ;
                                           ;
                  *  POS SA MIS FOR POWERBALL->
                  *******************************
```

```
343D: A5 DA             LDA  MODE
343F: C9 10             CMP  #PLAY
3441: D0 0E             BNE  NOPWR
3443: A5 BA             LDA  MSBAND      ;PWRBALL ON?
3445: 30 0A             BMI  NOPWR       ;J N.
3447: A4 BB             LDY  MISPOF
3449: B9 E6 35          LDA  POSTBL,Y
344C: A2 02             LDX  #2
344E: 20 D3 3C          JSR  POS         ;POS SA.
                  NOPWR
                                         ;
```

```
                  ********************************
                  * SET UP SPRITE B DISPLAY RAM  *
                  ********************************
                                         ;
                  * SET UP CHERRY DISPLAY RAM-->
                  *-------------------------------
3451: A2 07                LDX  #7
                  ICHERRY
                                         ;
3453: B5 90                LDA  CHERRYC,X
3455: 10 16                BPL  CHERRY5     ;JP IF NO CHERRY IN BAND.
                  * THERE IS A CHERRY IN BAND,SET UP POF+IMAGE PTR.->
                  ******************************
3457: 29 7F                AND  #$7F
3459: 4A                   LSR
345A: 4A                   LSR
345B: 4A                   LSR
345C: A8                   TAY              ;GIVE Y 4 BIT IDX TO POS TABLE.
345D: B9 87 36             LDA  CHRPOS,Y    ;GET IDX TO POS TBL.
3460: A8                   TAY
3461: B9 E6 35             LDA  POSTBL,Y
3464: 95 F8                STA  BPOF,X      ;CHERRY POS.
3466: A9 00                LDA  #<CHERRY
3468: 95 EF                STA  LODATB,X
346A: 4C 75 34             JMP  CDAT
                                         ;
                  * MUX CHERRY (SB)W/NULL FOR NOW.
                                         ;
                  * IF MR DO ON BAND USE HIM,ELSE USE BLANK(NULL)->
                  ********************************
                  CHERRY5
346D: A9 02                LDA  #02         ;FAKE POF.
346F: 95 F8                STA  BPOF,X
3471: A9 34                LDA  #<NULLB     ;NULL IMG ON SB IMG PAGE.
3473: 95 EF                STA  LODATB,X
                  CDAT
3475: CA                   DEX
3476: 10 DB                BPL  ICHERRY
                                         ;
```

```
                    ******************************
                    * HANDLE MR.DO MUX-->        *
                    ******************************
                    * PUT MR DO RAM IN PLACE-->
3478: A5 BD                    LDA  DOBAND
347A: 10 03                    BPL  FTEST       ;JP IF DO IS ON.
347C: 4C F2 34                 JMP  PWAIT
                    FTEST
347F: A5 84                    LDA  FRAMEL
3481: 29 01                    AND  #1
3483: F0 03                    BEQ  DOTIME      ;JP MR DO ON THIS FRAME.
3485: 4C BA 34                 JMP  NODO        ;MD NOT ON THIS FRAME.
                    DOTIME
3488: A5 BD                    LDA  DOBAND
348A: 4A                       LSR
348B: 4A                       LSR
348C: 4A                       LSR
348D: 4A                       LSR
348E: 29 07                    AND  #7
3490: AA                       TAX              ;MR DO BAND NUM.
3491: A4 C0                    LDY  DOPOF       ;GET MD POS TBL IDX.
3493: B9 E6 35                 LDA  POSTBL,Y
3496: 95 F8                    STA  BPOF,X
                                                ;
                    * DECIDE IF 2 BANDS ARE NEEDED->
3498: A5 BD                    LDA  DOBAND
349A: 29 0F                    AND  #$0F        ;KEEP DATA OFFSET.
349C: F0 15                    BEQ  BAND1       ;JP NO OFFSET.
349E: A8                       TAY
349F: B9 67 36                 LDA  TOPOFF,Y
34A2: 18                       CLC
34A3: 65 C3                    ADC  DODAT
34A5: 95 EF                    STA  LODATB,X    ;SET UP DATA PTR HI BAND.
                                                ;
34A7: CA                       DEX
34A8: A5 C3                    LDA  DODAT       ;DATA PTR LO.
34AA: 38                       SEC
34AB: F9 77 36                 SBC  BOTOFF,Y
34AE: 95 EF                    STA  LODATB,X    ;SET UP DATA PTR LO BAND.
34B0: 4C F2 34                 JMP  PWAIT
                    BAND1
34B3: A5 C3                    LDA  DODAT       ;MD DATA PTR LO.
34B5: 95 EF                    STA  LODATB,X
34B7: 4C F2 34                 JMP  PWAIT
                                                ;
                    * NOT MR DO NORMAL FRAME-->
                    ******************************
                    NODO
34BA: A5 BD                    LDA  DOBAND
34BC: 4A                       LSR
34BD: 4A                       LSR
34BE: 4A                       LSR
34BF: 4A                       LSR
34C0: 29 07                    AND  #7          ;GET BAND.
34C2: AA                       TAX
34C3: B5 90                    LDA  CHERRYC,X
34C5: 30 2B                    BMI  PWAIT       ;JP CHERRY ON THIS BAND.
34C7: A5 BD                    LDA  DOBAND
34C9: 29 0F                    AND  #$0F
34CB: F0 1A                    BEQ  MDON        ;JP IF LN=0(TURN MD ON.)
34CD: A8                       TAY              ;Y=LN OFFSET.
34CE: CA                       DEX              ;1 BAND LESS.
34CF: B5 90                    LDA  CHERRYC,X
34D1: 30 1F                    BMI  PWAIT       ;JP CHERRY ON IN LOWER BAND.
34D3: E8                       INX
```

```
34D4: B9 67 36          LDA   TOPOFF,Y
34D7: 18                CLC
34D8: 65 C3             ADC   DODAT
34DA: 95 EF             STA   LODATB,X
34DC: A5 C3             LDA   DODAT
34DE: 38                SEC
34DF: F9 77 36          SBC   BOTOFF,Y
34E2: 95 EE             STA   LODATB-1,X ;LOWER BAND IMG.
34E4: 4C EB 34          JMP   MDPOF
                  MDON
34E7: A5 C3             LDA   DODAT
34E9: 95 EF             STA   LODATB,X   ;MD IMG.
                  MDPOF
34EB: A4 C0             LDY   DOPOF
34ED: B9 E6 35          LDA   POSTBL,Y
34F0: 95 F8             STA   BPOF,X
                                         ;
```

```
                 PWAIT
                 PW3
34F2: AD 84 02          LDA  TIMER
34F5: 30 FB             BMI  PW3
                                        ;
34F7: 85 02             STA  ATWAIT
34F9: A9 FF             LDA  #$FF       ;PAL
34FB: 8D 96 02          STA  TIME64     ;PAL
                                        ;
                                        ;
34FE: A9 80             LDA  #$80
3500: 85 0D             STA  ATFR0      ;BORDER.
3502: A9 FF             LDA  #$FF
3504: 85 0E             STA  ATFR1
3506: 85 0F             STA  ATFR2
3508: A5 8F             LDA  FCOLOR
                                        ;FLD ON->
350A: 85 08             STA  ATFCOL
                                        ;FLD OFF 2 LINES->
350C: 85 02             STA  ATWAIT
350E: A9 00             LDA  #SCRCOL
3510: 85 08             STA  ATFCOL
3512: 85 02             STA  ATWAIT     ;PAL(3)
3514: 85 02             STA  ATWAIT
3516: A5 8F             LDA  FCOLOR
3518: 85 08             STA  ATFCOL
351A: 85 02             STA  ATWAIT
351C: A9 00             LDA  #BLACK
351E: 85 08             STA  ATFCOL
3520: 85 02             STA  ATWAIT
                                        ;
3522: A9 39             LDA  #>SBIMG    ;PAGE OF SB IMAGES.
3524: 85 F7             STA  HIDATB     ;SET SB HI DATA PTR.
                                        ;ALL ON SAME PG FOR NOW.
3526: 85 2B             STA  ATREMV     ;CLR INCR.
                                        ;
                 ********************************
                 * GO  PAINT ORCHARD + INVENTORY-->
                 ********************************
3528: 4C F4 3C          JMP  PAINT      ;PAINT THE SCREEN.
```

```
                   ********************************
                   * SOUND & MUSIC CONTROL FILE   *
                   ********************************
                             PUT  MR.DO.MUSIC
                   */ MR.DO.MUSIC LASTED: 7/26/83.
                   ********************************
                   * SOUND CONTROL ROUTINE-->     *
                   ********************************
352B: A4 89        MUSIC     LDY  BDUR
352D: 10 03                  BPL  MUS2         ;JP IF MUSIC ON.
352F: 4C B5 35               JMP  SOUND
                   MUS2
3532: D0 3A                  BNE  MUS25        ;JP NOTE NOT DONE.
3534: A4 87                  LDY  BIDX
3536: A2 0C                  LDX  #$0C
3538: B9 51 37               LDA  BMUSFW,Y
353B: C9 FF                  CMP  #$FF         ;SONG DONE?
353D: F0 26                  BEQ  MUS15        ;JP YES.
353F: B9 51 37               LDA  BMUSFW,Y
3542: 30 02                  BMI  MUS5
3544: A2 04                  LDX  #$04
                   MUS5
3546: 86 16                  STX  ATBWAV       ;NEW WAVE.
3548: 85 18                  STA  ATBDIV       ;NEW FREQ,
354A: B9 AE 37               LDA  BMUSVT,Y
354D: 29 3F                  AND  #$3F
354F: 85 89                  STA  BDUR
3551: B9 AE 37               LDA  BMUSVT,Y
3554: 4A                     LSR
3555: 4A                     LSR
3556: 4A                     LSR
3557: 4A                     LSR
3558: 4A                     LSR
3559: 4A                     LSR
355A: AA                     TAX
355B: BD 0B 38               LDA  VOLTBL,X
355E: 85 1A                  STA  ATBVOL       ;NEW VOL.
3560: E6 87                  INC  BIDX
3562: 4C 70 35               JMP  MUS50        ;GO DO CH.A.
                   MUS15
3565: A2 00                  LDX  #0
3567: 86 1A                  STX  ATBVOL       ;SONG OVER.
3569: CA                     DEX
356A: 86 89                  STX  BDUR
356C: 30 02                  BMI  MUS50
                   MUS25
356E: C6 89                  DEC  BDUR
                                               ;DO CH. A MUSIC-->
                   MUS50
3570: A4 88                  LDY  ADUR
3572: 30 71                  BMI  SND99        ;JP NOT ON.
3574: D0 3A                  BNE  MUS75        ;JP NOTE NOT DONE.
3576: A4 86                  LDY  AIDX
3578: A2 0C                  LDX  #$0C
357A: B9 97 36               LDA  AMUSFW,Y
357D: C9 FF                  CMP  #$FF         ;SONG DONE?
357F: F0 26                  BEQ  MUS65        ;JP YES.
3581: B9 97 36               LDA  AMUSFW,Y
3584: 30 02                  BMI  MUS55
3586: A2 04                  LDX  #$04
                   MUS55
3588: 86 15                  STX  ATAWAV       ;NEW WAVE.
358A: 85 17                  STA  ATADIV       ;NEW FREQ.
358C: B9 F4 36               LDA  AMUSVT,Y
```

```
3591: 85 88    >62             STA  ADUR       ;NEW DUR.
3593: B9 F4 36 >63             LDA  AMUSVT,Y
3596: 4A       >64             LSR
3597: 4A       >65             LSR
3598: 4A       >66             LSR
3599: 4A       >67             LSR
359A: 4A       >68             LSR
359B: 4A       >69             LSR
359C: AA       >70             TAX
359D: BD 0B 38 >71             LDA  VOLTBL,X
35A0: 85 19    >72             STA  ATAVOL
35A2: E6 86    >73             INC  AIDX
35A4: 4C E5 35 >74             JMP  SND99
               >75   MUS65
35A7: A2 00    >76             LDX  #0
35A9: 86 19    >77             STX  ATAVOL
35AB: CA       >78             DEX
35AC: 86 88    >79             STX  ADUR       ;SONG OFF.
35AE: D0 35    >80             BNE  SND99
               >81   MUS75
35B0: C6 88    >82             DEC  ADUR
35B2: 4C E5 35 >83             JMP  SND99
               >84   ********************************
               >85   *  NO MUSIC PLAYING,CHK SOUNDS *
               >86   ********************************
               >87   SOUND
35B5: A4 88    >88             LDY  ADUR
35B7: 30 2C    >89             BMI  SND99      ;JP NO SOUND ON.
35B9: D0 28    >90             BNE  SND80      ;JP SOUND NOT DONE.
35BB: A4 86    >91             LDY  AIDX
35BD: B9 0F 38 >92             LDA  SNDTBL,Y
35C0: 85 19    >93             STA  ATAVOL
35C2: D0 06    >94             BNE  SND5       ;JP SND NOT OVER.
35C4: A9 FF    >95             LDA  #$FF
35C6: 85 88    >96             STA  ADUR
35C8: D0 1B    >97             BNE  SND99
               >98   SND5
35CA: 4A       >99             LSR
35CB: 4A       >100            LSR
35CC: 4A       >101            LSR
35CD: 4A       >102            LSR
35CE: 85 15    >103            STA  ATAWAV     ;NEW WAV.
35D0: B9 10 38 >104            LDA  SNDTBL+1,Y
35D3: 85 17    >105            STA  ATADIV     ;NEW FREQ.
35D5: 4A       >106            LSR
35D6: 4A       >107            LSR
35D7: 4A       >108            LSR
35D8: 4A       >109            LSR
35D9: 4A       >110            LSR
35DA: 85 88    >111            STA  ADUR       ;NEW DUR.
35DC: E6 86    >112            INC  AIDX
35DE: E6 86    >113            INC  AIDX       ;UP NOTE PTR.
35E0: 4C E5 35 >114            JMP  SND99
               >115  SND80
35E3: C6 88    >116            DEC  ADUR
               >117  SND99
35E5: 60       >118            RTS
```

```
                    ********************************
                    * POSITION LATCH VALUES FILE   *
                    ********************************
                            PUT  POSITION.TABLE
                    */ POSITION VALUES,LASTED:1/27/83
                    * LAST EDIT 1/11/83
                                            ;
                    ********************************
                    *  TABLE OF VALUES FOR POSITIONING
                    * HI NIBBLE = INCREMENT
                    * LO NIBBLE = COUNTDOWN DELAY BEFORE LATCH.
                    ********************************
                    POSTBL
                                            ;
                    * POSITIONS 16 TO 25-->
                    ********************************
35E6: 50 40 30
35E9: 20 10 00
35EC: F0 E0 D0              DFB  $50,$40,$30,$20,$10,$00,$F0,$E0,$D0
                                            ;
                    * POSITIONS 26 TO 35-->
                    ********************************
35EF: C0 B0 A0
35F2: 90 71 61
35F5: 51 41 31
35F8: 21                    DFB  $C0,$B0,$A0,$90,$71,$61,$51,$41,$31,$21
                                            ;
                    * POSITIONS 36 TO 45--->
                    ********************************
35F9: 11 01 F1
35FC: E1 D1 C1
35FF: B1 A1 91
3602: 72                    DFB  $11,$01,$F1,$E1,$D1,$C1,$B1,$A1,$91,$72
                                            ;
                    * POSITIONS 46 TO 55--->
                    ********************************
3603: 62 52 42
3606: 32 22 12
3609: 02 F2 E2
360C: D2                    DFB  $62,$52,$42,$32,$22,$12,$02,$F2,$E2,$D2
                                            ;
                    * POSITIONS 56 TO 65--->
                    ********************************
360D: C2 B2 A2
3610: 92 73 63
3613: 53 43 33
3616: 23                    DFB  $C2,$B2,$A2,$92,$73,$63,$53,$43,$33,$23
                                            ;
                    * POSITIONS 66 TO 75-->
                    ********************************
3617: 13 03 F3
361A: E3 D3 C3
361D: B3 A3 93
3620: 74                    DFB  $13,$03,$F3,$E3,$D3,$C3,$B3,$A3,$93,$74
                                            ;
                    * POSITIONS 76 TO 85-->
                    ********************************
3621: 64 54 44
3624: 34 24 14
3627: 04 F4 E4
362A: D4                    DFB  $64,$54,$44,$34,$24,$14,$04,$F4,$E4,$D4
                                            ;
                    * POSITIONS 86 TO 95-->
                    ********************************
362B: C4 B4 A4
```

```
362E: 94 75 65
3631: 55 45 35
3634: 25                DFB  $C4,$B4,$A4,$94,$75,$65,$55,$45,$35,$25
                                    ;
                 * POSITIONS 96 TO 105-->
                 ******************************
3635: 15 05 F5
3638: E5 D5 C5
363B: B5 A5 95
363E: 76                DFB  $15,$05,$F5,$E5,$D5,$C5,$B5,$A5,$95,$76
                                    ;
                 * POSITIONS 106 TO 115-->
                 ******************************
363F: 66 56 46
3642: 36 26 16
3645: 06 F6 E6
3648: D6                DFB  $66,$56,$46,$36,$26,$16,$06,$F6,$E6,$D6
                                    ;
                 * POSITIONS 116 TO 125-->
                 ******************************
3649: C6 B6 A6
364C: 96 77 67
364F: 57 47 37
3652: 27                DFB  $C6,$B6,$A6,$96,$77,$67,$57,$47,$37,$27
                                    ;
                 * POSITIONS 126 TO 135-->
                 ******************************
3653: 17 07 F7
3656: E7 D7 C7
3659: B7 A7 97
365C: 78                DFB  $17,$07,$F7,$E7,$D7,$C7,$B7,$A7,$97,$78
                                    ;
                 * POSITIONS 136 TO 145-->
                 ******************************
365D: 68 58 48
3660: 38 28 18
3663: 08 F8 E8
3666: D8                DFB  $68,$58,$48,$38,$28,$18,$08,$F8,$E8,$D8
                                    ;
                                    ;
                 ******************************
                 * DATA PTR OFFSETS FOR IMAGES  *
                 *   CROSSING BAND BOUNDARIES   *
                 ******************************
                 TOPOFF
3667: 00 01 02
366A: 03 04 05
366D: 06 07 08          DFB  0,1,2,3,4,5,6,7,8
3670: 09 0A 0B
3673: 0C 0D 0E
3676: 0F                DFB  9,10,11,12,13,14,15
                 BOTOFF
3677: 12 11 10
367A: 0F 0E 0D          DFB  18,17,16,15,14,13
367D: 0C 0B 0A
3680: 09 08 07
3683: 06                DFB  12,11,10,9,8,7,6
3684: 05 04 03          DFB  5,4,3
                                    ;
                 ******************************
                 * TABLE OF INDEXES TO POSTBL   *
                 * FOR ACTUAL POS VALUES FOR    *
                 * CHERRIES. (POS 17-145).      *
                 ******************************
                 CHRPOS
3687: 00 08 10
```

```
368A: 18 20 28
368D: 30 38      >82          DFB  0,8,16,24,32,40,48,56
368F: 40 48 50
3692: 58 60 68
3695: 70 78      >83          DFB  64,72,80,88,96,104,112,120
                 >84                          ;
```

```
                *******************************
                * SOUND & MUSIC TABLES        *
                *******************************
                         PUT  MR.DO.SND  TABLES
                */MR.DO.SOUND TBLS LASTED 7/08/83.
                                         ;
                *******************************
                * MUSIC TABLES FOR CH. A->    *
                *******************************
                                         ;FREQ/WAVE TABLE->
                                         ;B0-B4=FREQ.
                                         ;B7=WAVE
                                         ;   1=$0C
                                         ;   0=$04
                *******************************
                * CH. A FREQ/WAVE TBL-->      *
                *******************************
                AMUSFW
                * SONG 1 = ORCHARD SONG-->
                AS1FW
3697: 13 00 0E
369A: 00 0F 00
369D: 11 00 13
36A0: 00 13              DFB  $13,$00,$0E,$00,$0F,$00,$11,$00,$13,$00,$13
36A2: 00 13 00
36A5: 13 00 16
36A8: 00 11 00
36AB: 13 00              DFB  $00,$13,$00,$13,$00,$16,$00,$11,$00,$13,$00
36AD: 16 00 17
36B0: 00 1A 00
36B3: 17 00 16
36B6: 00                 DFB  $16,$00,$17,$00,$1A,0,$17,0,$16,$00
36B7: 13 00 11
36BA: 00 0E              DFB  $13,$00,$11,$00,$0E
36BC: 00 0F 00
36BF: 0F 00 11
36C2: 00 0F 00
36C5: 13 00              DFB  $00,$0F,$00,$0F,$00,$11,$00,$0F,$00,$13,$00
36C7: FF                 DFB  $FF         ;END OF SONG.
                *  SONG 2 = END SONG-->
                *******************************
                AS2FW
36C8: 1A 00 11
36CB: 00 11              DFB  $1A,$0,$11,$0,$11
36CD: 00 14 00
36D0: 1A 00              DFB  $0,$14,$0,$1A,$0
36D2: 1A 00 11
36D5: 00 11              DFB  $1A,$0,$11,$0,$11
36D7: 00 14 00
36DA: 1A 00              DFB  $0,$14,$0,$1A,$0
36DC: 17 00 11
36DF: 00 11              DFB  $17,$0,$11,0,$11
36E1: 00 11              DFB  $00,$11
36E3: 00 1B 00
36E6: 1A                 DFB  $0,$1B,$0,$1A
36E7: FF                 DFB  $FF         ;END OF SONG.
                * MR DO DEAD SONG-->
                *******************************
                AS3FW
36E8: 0F 11 13
36EB: 16 17              DFB  $0F,$11,$13,$16,$17
36ED: 1A 1D 00
36F0: 13 00              DFB  $1A,$1D,$00,$13,$00
36F2: 0E                 DFB  $0E
36F3: FF                 DFB  $FF         ;END OF SONG.
```

```
                    ********************************
                    * CH A VOLUME/TIME TABLE->     *
                    ********************************
                    AMUSVT
                                                ;B0-B5=TIME.
                                                ;B6-B7=IDX TO VOLTBL.
                    AS1VT
36F4: C6 02 C6
36F7: 02 C6 02
36FA: C6 02 C6
36FD: 02 C6 02              DFB  $C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$
02
3700: C6 02 C6
3703: 02 C6 02
3706: C6 02 C6
3709: 02 C6 02              DFB  $C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$
02
370C: D3 13 C6
370F: 02 C6 02
3712: C6 02 C6
3715: 02 C9 09              DFB  $D3,$13,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C9,$
09
3718: C9 09 C6
371B: 02 C6 02
371E: C6 02 C6
3721: 02 D3 13              DFB  $C9,$09,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$D3,$
13
3724: FF                    DFB  $FF            ;END OF SONG.
                                                ;
                    *  SONG2 = END SONG-->
                    AS2VT
3725: CA 0A C7
3728: 01 C7                 DFB  $CA,$0A,$C7,$01,$C7
372A: 01 CA 0A
372D: CA 0A                 DFB  $01,$CA,$0A,$CA,$0A
372F: CA 0A C7
3732: 01 C7                 DFB  $CA,$0A,$C7,$01,$C7
3734: 01 CA 0A
3737: CA 0A                 DFB  $01,$CA,$0A,$CA,$0A
3739: CA 0A C7
373C: 01 C7                 DFB  $CA,$0A,$C7,$01,$C7
373E: 01 D6 2E
3741: CA 0A                 DFB  $01,$D6,$2E,$CA,$0A
3743: CA                    DFB  $CA
3744: FF                    DFB  $FF            ;END OF SONG.
                    *  MR DO DEAD SONG-->
                    AS3VT
3745: C5 C5 C5
3748: C5 C5                 DFB  $C5,$C5,$C5,$C5,$C5
374A: C5 C5 05
374D: C5 05                 DFB  $C5,$C5,$05,$C5,$05
374F: C5                    DFB  $C5
3750: FF                    DFB  $FF            ;END OF SONG.
                    ********************************
                    * MUSIC TABLES FOR CH B->      *
                    ********************************
                                                ;CH B FREQ/WAVE TBL->
                    ********************************
                    * CH.B  FREQ/WAVE TABLE-->     *
                    ********************************
                    BMUSFW
                    BS1FW
3751: 93 80 8F
3754: 80 9A 80
3757: 93 80 8F
375A: 80 91                 DFB  $93,$80,$8F,$80,$9A,$80,$93,$80,$8F,$80,$91
375C: 80 8F 80
```

```
375C: 80 8E 80
375F: 9A 80 93
3762: 80 8F 80
3765: 94 80     >80          DFB  $80,$8E,$80,$9A,$80,$93,$80,$8F,$80,$94,$80
3767: 91 80 8E
376A: 80 8B 80
376D: 8C 80 8E
3770: 80 8F     >81          DFB  $91,$80,$8E,$80,$8B,$80,$8C,$80,$8E,$80,$8F
3772: 80 91 80
3775: 94 80 91
3778: 80 8C 80
377B: 8E 80     >82          DFB  $80,$91,$80,$94,$80,$91,$80,$8C,$80,$8E,$80
377D: 8F 80 91
3780: 80        >83          DFB  $8F,$80,$91,$80
3781: FF        >84          DFB  $FF          ;END OF SONG1.
                >85   BS2FW
3782: 8D 80 8B
3785: 80 8D     >86          DFB  $8D,$80,$8B,$80,$8D
3787: 80 8B 80
378A: 8D 80     >87          DFB  $80,$8B,$80,$8D,$80
378C: 8B 80 8D
378F: 80 8B     >88          DFB  $8B,$80,$8D,$80,$8B
3791: 80 8F 80
3794: 8B 80     >89          DFB  $80,$8F,$80,$8B,$80
3796: 8B 80 97
3799: 80 97     >90          DFB  $8B,$80,$97,$80,$97
379B: 80 97 80
379E: 97 80     >91          DFB  $80,$97,$80,$97,$80
37A0: 91        >92          DFB  $91
37A1: FF        >93          DFB  $FF          ;END OF SONG.
                >94   * MR DO DEAD SONG-->
                >95   BS3FW
37A2: 0F 11 13
37A5: 16 17     >96          DFB  $0F,$11,$13,$16,$17
37A7: 1A 1D 00
37AA: 13 00     >97          DFB  $1A,$1D,$00,$13,$00
37AC: 0E        >98          DFB  $0E
37AD: FF        >99          DFB  $FF          ;END OF SONG.
                >100  ********************************
                >101  * CH. B MUSIC VOL/TIME TBL     *
                >102  ********************************
                >103  BMUSVT
                >104  BS1VT
37AE: 06 02 09
37B1: 09 06 02
37B4: 09 09 09
37B7: 09 06 02 >105          DFB  $06,$02,$09,$09,$06,$02,$09,$09,$09,$09,$06,$
02
37BA: 09 09 06
37BD: 02 09 09
37C0: 09 09 06
37C3: 02 09 09 >106          DFB  $09,$09,$06,$02,$09,$09,$09,$09,$06,$02,$09,$
09
37C6: 06 02 06
37C9: 02 06 02
37CC: 06 02 06
37CF: 02 06 02 >107          DFB  $06,$02,$06,$02,$06,$02,$06,$02,$06,$02,$06,$
02
37D2: 09 09 06
37D5: 02 06 02
37D8: 06 02 06
37DB: 02        >108         DFB  $09,$09,$06,$02,$06,$02,$06,$02,$06,$02
37DC: 06 02     >109         DFB  $06,$02
37DE: FF        >110         DFB  $FF          ;END OF SONG1.
                >111  BS2VT
37DF: 8A 0A 8A
```

```
37E2: 0A 8A                       DFB  $8A,$0A,$8A,$0A,$8A
37E4: 0A 8A 0A
37E7: 8A 0A                       DFB  $0A,$8A,$0A,$8A,$0A
37E9: 8A 0A 8A
37EC: 0A 8A                       DFB  $8A,$0A,$8A,$0A,$8A
37EE: 0A 8A 0A
37F1: 8A 0A                       DFB  $0A,$8A,$0A,$8A,$0A
37F3: 8A 0A 87
37F6: 01 87                       DFB  $8A,$0A,$87,$01,$87
37F8: 01 8A 0A
37FB: 8A 0A                       DFB  $01,$8A,$0A,$8A,$0A
37FD: 8A                          DFB  $8A
37FE: FF                          DFB  $FF          ;END OF SONG.
                    * MR DO DEAD SONG->
                    BS3VT
37FF: 05 05 05
3802: 05 05                       DFB  $05,$05,$05,$05,$05
3804: 05 05 05
3807: 05 05                       DFB  $05,$05,$05,$05,$05
3809: 05                          DFB  $05
380A: FF                          DFB  $FF          ;END OF SONG.
                    VOLTBL
380B: 00 0A 0B
380E: 0C                          DFB  0,10,11,12
                                                    ;
                    ********************************
                    * DATA STRUCTURE FOR SOUNDS--> *
                    * BYTE 1: B0-B3= VOLUME        *
                    *         B4-B7= WAVEFORM      *
                    * BYTE 2: B0-B4= FREQ DIVISOR  *
                    *         B5-B7= 3 BIT DURATION*
                    *   WHEN VOLUME=0,SOUND DONE   *
                    ********************************
                    SNDTBL
                    DEADSND
380F: 88 F5 87
3812: FA                          DFB  $88,$F5,$87,$FA
3813: 88 F1 00
3816: 00                          DFB  $88,$F1,0,0
                    BEEP
3817: 48 7B                       DFB  $48,$7B
3819: 44 7B                       DFB  $44,$7B
381B: 00 00                       DFB  0,0
                    BOOP
381D: 48 73                       DFB  $48,$73
381F: 44 73                       DFB  $44,$73
3821: 00 00                       DFB  0,0
                    BELLS
3823: 49 63                       DFB  $49,$63
3825: 49 EA                       DFB  $49,$EA
3827: 49 E7                       DFB  $49,$E7
3829: 00 00                       DFB  0,0
                    CHER1
382B: 4B 7D                       DFB  $4B,$7D
382D: 4B 6E                       DFB  $4B,$6E
382F: 4B 7D                       DFB  $4B,$7D
3831: 4B 6E                       DFB  $4B,$6E
3833: 4B 7D                       DFB  $4B,$7D
3835: 4B 7D                       DFB  $4B,$7D
3837: 00                          DFB  0
                    CHER2
3838: 4B 7A                       DFB  $4B,$7A
383A: 4B 6C                       DFB  $4B,$6C
383C: 4B 7A                       DFB  $4B,$7A
383E: 4B 6C                       DFB  $4B,$6C
3840: 4B 7A                       DFB  $4B,$7A
```

```
3842: 4B 6C              DFB  $4B,$6C
3844: 00                 DFB  0
                CHER3
3845: 4B 77              DFB  $4B,$77
3847: 4B 6B              DFB  $4B,$6B
3849: 4B 77              DFB  $4B,$77
384B: 4B 6B              DFB  $4B,$6B
384D: 4B 77              DFB  $4B,$77
384F: 4B 6B              DFB  $4B,$6B
3851: 00                 DFB  0
                CHER4
3852: 4B 75              DFB  $4B,$75
3854: 4B 6A              DFB  $4B,$6A
3856: 4B 75              DFB  $4B,$75
3858: 4B 6A              DFB  $4B,$6A
385A: 4B 75              DFB  $4B,$75
385C: 4B 6A              DFB  $4B,$6A
385E: 00                 DFB  0
                CHER5
385F: 4B 73              DFB  $4B,$73
3861: 4B 69              DFB  $4B,$69
3863: 4B 73              DFB  $4B,$73
3865: 4B 69              DFB  $4B,$69
3867: 4B 73              DFB  $4B,$73
3869: 4B 69              DFB  $4B,$69
386B: 00                 DFB  0
                CHER6
386C: 4B 71              DFB  $4B,$71
386E: 4B 68              DFB  $4B,$68
3870: 4B 71              DFB  $4B,$71
3872: 4B 68              DFB  $4B,$68
3874: 4B 71              DFB  $4B,$71
3876: 4B 68              DFB  $4B,$68
3878: 00                 DFB  0
```

```
                        OBJ  $8894
                        ORG  $3890
            ********************************
            * DIGIT DATA FILE              *
            ********************************
                        PUT  MR.DO.DIGITS
            */MR.DO.DATA LASTED 5/15/83
            *.....DIGITS.....
            DATA1
            DIGITS
            *
            ZERO
3890: 00 1C 22
3893: 63 63 63
3896: 22 1C             DFB  $00,$1C,$22,$63,$63,$63,$22,$1C
            ONE
3898: 00 7F 0C
389B: 0C 0C 1C
389E: 0C 04             DFB  $00,$7F,$0C,$0C,$0C,$1C,$0C,$04
            TWO
38A0: 00 7F 60
38A3: 60 3E 03
38A6: 03 3E             DFB  $00,$7F,$60,$60,$3E,$03,$03,$3E
            THREE
38A8: 00 7E 03
38AB: 03 3E 03
38AE: 03 7E             DFB  $00,$7E,$03,$03,$3E,$03,$03,$7E
            FOUR
38B0: 00 06 7F
38B3: 26 16 0E
38B6: 06 02             DFB  $00,$06,$7F,$26,$16,$0E,$06,$02
            FIVE
38B8: 00 7E 03
38BB: 03 3E 60
38BE: 60 7E             DFB  $00,$7E,$03,$03,$3E,$60,$60,$7E
            SIX
38C0: 00 3E 63
38C3: 63 7E 60
38C6: 60 3E             DFB  $00,$3E,$63,$63,$7E,$60,$60,$3E
            SEVEN
38C8: 00 30 18
38CB: 0C 06 03
38CE: 61 7F             DFB  $00,$30,$18,$0C,$06,$03,$61,$7F
            EIGHT
38D0: 00 3E 63
38D3: 63 3E 63
38D6: 63 3E             DFB  $00,$3E,$63,$63,$3E,$63,$63,$3E
            NINE
38D8: 00 3E 03
38DB: 03 3F 63
38DE: 63 3E             DFB  $00,$3E,$03,$03,$3F,$63,$63,$3E
38E0: 00 00 00
38E3: 00 00 00
38E6: 00 00 BLANK       DFB  0,0,0,0,0,0,0,0
            *
            SCORTB
38E8: 90 98 A0
38EB: A8 B0             DFB  <ZERO,<ONE,<TWO,<THREE,<FOUR
38ED: B8 C0 C8
38F0: D0 D8             DFB  <FIVE,<SIX,<SEVEN,<EIGHT,<NINE
```

```
                         OBJ  $8904
                         ORG  $3900
          ********************************
          * SPRITE B IMAGE DATA FILE     *
          ********************************
                         PUT  MR.DO.SPRITEB IMAGES
          */MR.DO.SB IMAGES LASTED 7/06/83.
                                       ;
                                       ;
          * SPRITE B IMAGES-->
          ********************************
          SBIMG
          CHERRY
3900: 00                 DFB  0
3901: 00                 DFB  0
3902: 00                 DFB  0
3903: 00                 DFB  0
3904: 42                 DFB  $42
3905: E7                 DFB  $E7
3906: EF                 DFB  $EF
3907: E7                 DFB  $E7
3908: 42                 DFB  $42
3909: 24                 DFB  $24
390A: 14                 DFB  $14
390B: 0C                 DFB  $0C
390C: 04                 DFB  $04
390D: 00                 DFB  0
390E: 00                 DFB  0
390F: 00                 DFB  0
3910: 00                 DFB  0
3911: 00                 DFB  0
                                       ;
          * MR DO, LEFT FOOT DOWN, FACING LEFT, EYES OPEN.
3912: 00 00 00
3915: 00 00 00
3918: 00 00              DFB  0,0,0,0,0,0,0,0
391A: 00 00 00
391D: 00 00 00
3920: 00 00              DFB  0,0,0,0,0,0,0,0
          MRDOLL
3922: 00                 DFB  0
3923: C0 44 4C
3926: 30 38              DFB  $C0,$44,$4C,$30,$38
3928: 78 F8 F8
392B: 30 70              DFB  $78,$F8,$F8,$30,$70
392D: 58 5D 7E
3930: 38 10              DFB  $58,$5D,$7E,$38,$10
3932: 00                 DFB  0
3933: 00                 DFB  0
                                       ;
          NULLB
3934: 00 00 00
3937: 00 00 00
393A: 00 00              DFB  0,0,0,0,0,0,0,0
393C: 00 00 00
393F: 00 00 00
3942: 00 00              DFB  0,0,0,0,0,0,0,0
          * MR DO RIGHT FOOT DOWN, FACING LEFT, EYES CLOSED.
          MRDORL
3944: 00                 DFB  0
3945: 68 38 30
3948: 30 38              DFB  $68,$38,$30,$30,$38
394A: 78 F8 F8
394D: 30 70              DFB  $78,$F8,$F8,$30,$70
394F: 58 5C 7E
```

```
3952: 39 10               DFB  $58,$5C,$7E,$39,$10
3954: 00                  DFB  0
3955: 00                  DFB  0
                                         ;
3956: 00 00 00
3959: 00 00 00
395C: 00 00               DFB  0,0,0,0,0,0,0,0
395E: 00 00 00
3961: 00 00 00
3964: 00 00               DFB  0,0,0,0,0,0,0,0
              * MR DO RIGHT FOOT DOWN, FACING RIGHT, EYES CLOSED.
              ********************************
              MRDORR
3966: 00                  DFB  0
3967: 03 22 32
396A: 0C 1C               DFB  $03,$22,$32,$0C,$1C
396C: 1E 1F 1F
396F: 0C 0E               DFB  $1E,$1F,$1F,$0C,$0E
3971: 1A BA 7E
3974: 1C 08               DFB  $1A,$BA,$7E,$1C,$08
3976: 00                  DFB  0
3977: 00                  DFB  0
                                         ;
3978: 00 00 00
397B: 00 00 00
397E: 00 00               DFB  0,0,0,0,0,0,0,0
3980: 00 00 00
3983: 00 00 00
3986: 00 00               DFB  0,0,0,0,0,0,0,0
              * MR DO LEFT FOOT DOWN,FACING RIGHT,EYES OPEN.
              MRDOLR
3988: 00                  DFB  0
3989: 16 1C 0C
398C: 0C 1C               DFB  $16,$1C,$0C,$0C,$1C
398E: 1E 1F 1F
3991: 0C 0E               DFB  $1E,$1F,$1F,$0C,$0E
3993: 1A 3A 7E
3996: 9C 08               DFB  $1A,$3A,$7E,$9C,$08
3998: 00                  DFB  0
3999: 00                  DFB  0
                                         ;
399A: 00 00 00
399D: 00 00 00
39A0: 00 00               DFB  0,0,0,0,0,0,0,0
39A2: 00 00 00
39A5: 00 00 00
39A8: 00 00               DFB  0,0,0,0,0,0,0,0
```

```
                ********************************
                * ADDRESS PTRS FOR WORDS       *
                ********************************
                         PUT   MR.DO.ADDRESS PTRS
                */ MR.DO ADDR PTRS LASTED 7/28/83.
                *
                * LOW BYTE ADDRESSES FOR WORDS-->
                ********************************
                * WORD "COLECO"
                ********************************
                WORDS
39AA: 70 80 78
39AD: 30 70 80  COLECO   DFB  <LC,<LO,<LL,<LE,<LC,<LO
                * WORD "PRESENTS"
                ********************************
39B0: 88 90 98
39B3: A0 A8 B0  PRESNT   DFB  <LPR,<LE2,<LSE,<LN,<LTS,<LS
                                            ;
                * WORD "MR DO!"
                ********************************
                MRDOT1
39B6: B8                 DFB  <NULL
39B7: 00 18 20
39BA: 28 B8 B8  MRDOTB   DFB  <LM,<SMLR,<LD,<LOH,<NULL,<NULL
                * NULL WORD-->
                ********************************
                NULLTB
39BD: B8 B8 B8
39C0: B8 B8 B8           DFB  <NULL,<NULL,<NULL,<NULL,<NULL,<NULL
                * WORD "GAME"--->
                ********************************
                GAMETB
39C3: B8 C2 60
39C6: 00 30 B8           DFB  <NULL,<LG,<LA,<LM,<LE,<NULL
                * WORD "OVER"-->
                ********************************
                OVERTB
39C9: B8 80 C8
39CC: 30 08 B8           DFB  <NULL,<LO,<LV,<LE,<LR,<NULL
                * WORD "EXTRA"
                ********************************
39CF: B8 30 40
39D2: 50 08 60  LETTBL   DFB  <NULL,<LE,<LX,<LT,<LR,<LA
                * WORD EXTRA IN REVERSE VIDEO
                ********************************
                REVTBL
39D5: B8 38 48           DFB  <NULL,<REVE,<REVX
39D8: 58 10 68           DFB  <REVT,<REVR,<REVA
                                            ;
                                            ;
                ********************************
                * LOAD PTRS FOR 6 SPRITES-->   *
                * X = HI PTR FOR WHERE DATA IS *
                * A = LO ADDR OF TBL WHERE LO  *
                *     BYTE PTRS ARE            *
                ********************************
                SPRIT6
39DB: 85 EF              STA  TEMP1
39DD: A9 39              LDA  #>WORDS
39DF: 85 F0              STA  TEMP2
39E1: 86 F1              STX  TEMP3
39E3: A0 05              LDY  #5
39E5: A2 0B              LDX  #11
                SPR6
39E7: A5 F1              LDA  TEMP3
```

```
39E9: 95 F2          STA  PD100K,X
39EB: CA             DEX
39EC: B1 EF          LDA  (TEMP1),Y
39EE: 95 F2          STA  PD100K,X
39F0: CA             DEX
39F1: 88             DEY
39F2: 10 F3          BPL  SPR6
39F4: 60             RTS
                                        ;
                                        ;
```

```
                    OBJ  $8A04
                    ORG  $3A00
          ********************************
          * SPRITE A IMAGES (PAGE 1)     *
          ********************************
                    PUT  MR.DO.SA   IMG1
          */MR.DO.SA IMG1 LASTED 8/3/83.
                                   ;
          *-----------------------------
                                   ;
          * SPRITE A IMAGE DATA-->
          ********************************
          * SA IMAGES ARE ON 2 PAGES,    *
          * IMG1 & IMG2. DURING ORCHARD  *
          * PAINTING, EACH BANDS HI DATA *
          * PTR (PAGE) IS GOVERENED BY   *
          * ITS RESPECTIVE BIT IN PTR.   *
          * IF BIT = 1 THEN IMG IS ON    *
          * IMG2 PAGE, ELSE ITS ON IMG1  *
          * PAGE.                        *
          ********************************
          IMG1
          * APPLE SITTING STEADY-->
          ********************************
          APPLE0
          APPLE1
3A00: 00            DFB  0
3A01: 00            DFB  0
3A02: 24            DFB  %00100100
3A03: 7E            DFB  %01111110
3A04: 7E            DFB  %01111110
3A05: FF            DFB  %11111111
3A06: FF            DFB  %11111111
3A07: FF            DFB  %11111111
3A08: 67            DFB  %01100111
3A09: 2A            DFB  %00101010
3A0A: 08            DFB  %00001000
3A0B: 04            DFB  %00000100
3A0C: 00            DFB  0
3A0D: 00            DFB  0
                                   ;
          * APPLE ROCKING LEFT-->
          ********************************
          APPLE2
3A0E: 00 00         DFB  0,0
3A10: 10 36 7F
3A13: FF FF         DFB  $10,$36,$7F,$FF,$FF
3A15: FF 67 2A
3A18: 08 10         DFB  $FF,$67,$2A,$08,$10
3A1A: 00 00         DFB  0,0
          * APPLE ROCKING RIGHT-->
          ********************************
          APPLE3
3A1C: 00 00         DFB  0,0
3A1E: 08 6C FE
3A21: FF FF         DFB  $08,$6C,$FE,$FF,$FF
3A23: FF E6 54
3A26: 10 08         DFB  $FF,$E6,$54,$10,$08
3A28: 00 00         DFB  0,0
          * APPLE BREAKING STAGE 1->>
          ********************************
          APPLE4
3A2A: 00 00         DFB  0,0
3A2C: 18 3C E7
3A2F: C3 C3         DFB  $18,$3C,$E7,$C3,$C3
3A31: 81 81 00
```

```
3A31: 81 81 00
3A34: 00 00                  DFB  $81,$81,$00,$00,$00
3A36: 00 00                  DFB  0,0
                                       ;
              * APPLE BREAKING STAGE 2-->
              *******************************
              APPLE5
3A38: 00 00                  DFB  0,0
              APEND
3A3A: 3C E7 C3
3A3D: 81 00                  DFB  $3C,$E7,$C3,$81,$00
                                       ;
3A3F: 00 00 00
3A42: 00 00 00
3A45: 00 00                  DFB  0,0,0,0,0,0,0,0
3A47: 00 00 00
3A4A: 00 00 00
3A4D: 00 00                  DFB  0,0,0,0,0,0,0,0
                                       ;
              * DIG FACING LEFT,RIGHT FOOT DOWN-->
              *******************************
              DIGLR
3A4F: 00                     DFB  0
3A50: 0C 08 38
3A53: 28 7E                  DFB  $0C,$08,$38,$28,$7E
3A55: C2 47 28
3A58: 28 C8                  DFB  $C2,$47,$28,$28,$C8
3A5A: 86 92 92
3A5D: 84 78                  DFB  $86,$92,$92,$84,$78
3A5F: 00                     DFB  0
3A60: 00 00 00
3A63: 00 00 00
3A66: 00 00                  DFB  0,0,0,0,0,0,0,0
3A68: 00 00 00
3A6B: 00 00 00
3A6E: 00 00                  DFB  0,0,0,0,0,0,0,0

              * DIGGER FACING LEFT LEFT FOOT DOWN-->
              *******************************
              DIGLL
3A70: 00                     DFB  0
3A71: 30 20 2C
3A74: 28 7C                  DFB  $30,$20,$2C,$28,$7C
3A76: C4 44 22
3A79: 2F C8                  DFB  $C4,$44,$22,$2F,$C8
3A7B: 86 82 92
3A7E: 84 78                  DFB  $86,$82,$92,$84,$78
3A80: 00                     DFB  0
3A81: 00 00 00
3A84: 00 00 00
3A87: 00 00                  DFB  0,0,0,0,0,0,0,0
3A89: 00 00 00
3A8C: 00 00 00
3A8F: 00 00                  DFB  0,0,0,0,0,0,0,0
3A91: 00                     DFB  0
                                       ;
              * DIGGING FACING RIGHT-->
              DUGLL
3A92: 00                     DFB  0
3A93: 2A 3E 7F
3A96: EA CA                  DFB  $2A,$3E,$7F,$EA,$CA
3A98: 80 80 CA
3A9B: EB FF                  DFB  $80,$80,$CA,$EB,$FF
3A9D: 7E 66 55
3AA0: 55 77                  DFB  $7E,$66,$55,$55,$77
3AA2: 00                     DFB  0
```

```
3AA3: 00 00 00
3AA6: 00 00      >98              DFB  0,0,0,0,0
3AA8: 00 00 00
3AAB: 00 00      >99              DFB  0,0,0,0,0
3AAD: 00 00 00
3AB0: 00 00      >100             DFB  0,0,0,0,0
3AB2: 00 00      >101             DFB  0,0
                 >102                             ;TEMP DIGGING IMG->
                 >103  DUGLR
3AB4: 00         >104             DFB  0
3AB5: 54 54 3E
3AB8: 7F CA      >105             DFB  $54,$54,$3E,$7F,$CA
3ABA: 80 CA EB
3ABD: FF 7E      >106             DFB  $80,$CA,$EB,$FF,$7E
3ABF: 4C 55 55
3AC2: 55 77      >107             DFB  $4C,$55,$55,$55,$77
3AC4: 00         >108             DFB  0
3AC5: 00 00 00
3AC8: 00 00 00
3ACB: 00 00      >109             DFB  0,0,0,0,0,0,0,0
3ACD: 00 00 00
3AD0: 00 00 00
3AD3: 00 00      >110             DFB  0,0,0,0,0,0,0,0
3AD5: 00 00 00
3AD8: 00 00      >111             DFB  0,0,0,0,0
3ADA: 00 00 00
3ADD: 00 00      >112             DFB  0,0,0,0,0
3ADF: 00 00 00
3AE2: 00 00      >113             DFB  0,0,0,0,0
                 >114  NULL1
3AE4: 00 00 00
3AE7: 00 00      >115             DFB  0,0,0,0,0
3AE9: 00 00 00
3AEC: 00 00      >116             DFB  0,0,0,0,0
3AEE: 00 00 00
3AF1: 00 00      >117             DFB  0,0,0,0,0
3AF3: 00 00 00   >118             DFB  0,0,0
                 >119
```

```
                        OBJ  $8B04
                        ORG  $3B00
               ********************************
               * SPRITE A IMAGES (PAGE 2)     *
               ********************************
                        PUT  MR.DO.SA   IMG2
               */MR.DO.SA IMG2 LASTED 8/3/83.
                                        ;
               *------------------------------
               *  ALPHA MONSTER IMAGES--->
               ********************************
               IMG2
                                        ;ORG $3B40->
               * DIGGING FACING LEFT-->
               DUGRR
3B00: 00 00             DFB  0,0
3B02: C2 66 FC
3B05: F8 AC             DFB  $C2,$66,$FC,$F8,$AC
3B07: A6 02 0A
3B0A: 0E AC             DFB  $A6,$02,$0A,$0E,$AC
3B0C: AC F8 78
3B0F: 30 00             DFB  $AC,$F8,$78,$30,$00
3B11: 00 00 00
3B14: 00 00             DFB  0,0,0,0,0
3B16: 00 00 00
3B19: 00 00             DFB  0,0,0,0,0
3B1B: 00 00 00
3B1E: 00 00             DFB  0,0,0,0,0
               DUGRL
3B20: 00 00 00
3B23: 00                DFB  0,0,0,0
3B24: 38 18 18
3B27: 38 7C             DFB  $38,$18,$18,$38,$7C
3B29: E6 A6 06
3B2C: A6 FC             DFB  $E6,$A6,$06,$A6,$FC
3B2E: 7C 38             DFB  $7C,$38
3B30: 00 00 00
3B33: 00 00             DFB  0,0,0,0,0
3B35: 00 00 00
3B38: 00 00             DFB  0,0,0,0,0
3B3A: 00 00 00
3B3D: 00 00             DFB  0,0,0,0,0
3B3F: 00 00             DFB  0,0
3B41: 00 00 00
3B44: 00                DFB  0,0,0,0
3B45: 00 00 00
3B48: 00                DFB  0,0,0,0
               LETRE
3B49: 00                DFB  0              ;LETTER E
3B4A: C3 66 7E
3B4D: 42 81             DFB  $C3,$66,$7E,$42,$81
3B4F: BD B1 B1
3B52: BD B1             DFB  $BD,$B1,$B1,$BD,$B1
3B54: B1 BD 81
3B57: 42 3C             DFB  $B1,$BD,$81,$42,$3C
3B59: 00 00 00
3B5C: 00 00             DFB  0,0,0,0,0
3B5E: 00 00 00
3B61: 00 00             DFB  0,0,0,0,0
3B63: 00 00 00
3B66: 00 00             DFB  0,0,0,0,0
3B68: 00 00             DFB  0,0
               LETRX
3B6A: 00                DFB  0              ;LETTER X
3B6B: C3 66 7E
```

```
3B6E: 42 81                    DFB $C3,$66,$7E,$42,$81
3B70: A5 A5 A5
3B73: 99 99                    DFB $A5,$A5,$A5,$99,$99
3B75: A5 A5 81
3B78: 42 3C                    DFB $A5,$A5,$81,$42,$3C
3B7A: 00 00 00
3B7D: 00 00                    DFB 0,0,0,0,0
3B7F: 00 00 00
3B82: 00 00                    DFB 0,0,0,0,0
3B84: 00 00 00
3B87: 00 00                    DFB 0,0,0,0,0
3B89: 00 00                    DFB 0,0
                     LETRT
3B8B: 00                       DFB 0              ;LETTER T
3B8C: C3 66 7E
3B8F: 42 81                    DFB $C3,$66,$7E,$42,$81
3B91: 99 99 99
3B94: 99 99                    DFB $99,$99,$99,$99,$99
3B96: 99 BD 81
3B99: 42 3C                    DFB $99,$BD,$81,$42,$3C
3B9B: 00 00 00
3B9E: 00 00                    DFB 0,0,0,0,0
3BA0: 00 00 00
3BA3: 00 00                    DFB 0,0,0,0,0
3BA5: 00 00 00
3BA8: 00 00                    DFB 0,0,0,0,0
3BAA: 00 00                    DFB 0,0
                     LETRR
3BAC: 00                       DFB 0              ;LETTER R.
3BAD: C3 66 7E
3BB0: 42 81                    DFB $C3,$66,$7E,$42,$81
3BB2: B5 B5 B9
3BB5: B5 B5                    DFB $B5,$B5,$B9,$B5,$B5
3BB7: B5 B9 81
3BBA: 42 3C                    DFB $B5,$B9,$81,$42,$3C
3BBC: 00 00 00
3BBF: 00 00                    DFB 0,0,0,0,0
3BC1: 00 00 00
3BC4: 00 00                    DFB 0,0,0,0,0
3BC6: 00 00 00
3BC9: 00 00                    DFB 0,0,0,0,0
3BCB: 00 00                    DFB 0,0
                     LETRA
3BCD: 00                       DFB 0              ;LETTER A
3BCE: C3 66 7E
3BD1: 42 81                    DFB $C3,$66,$7E,$42,$81
3BD3: A5 A5 BD
3BD6: A5 A5                    DFB $A5,$A5,$BD,$A5,$A5
3BD8: A5 99 81
3BDB: 42 3C                    DFB $A5,$99,$81,$42,$3C
3BDD: 00 00 00
3BE0: 00 00                    DFB 0,0,0,0,0
3BE2: 00 00 00
3BE5: 00 00                    DFB 0,0,0,0,0
3BE7: 00 00 00
3BEA: 00 00                    DFB 0,0,0,0,0
                                                  ;
3BEC: 00 00 00
3BEF: 00 00                    DFB 0,0,0,0,0
```

```
                           OBJ  $8C04
                           ORG  $3C00
                 ********************************
                 * LETTER IMAGE TABLES          *
                 ********************************
                           PUT  MR.DO.LETTER TABLES
                 */MR.DO.LETTER TBLS LASTED 7/29/83
                                          ;
                 DATA2
                 LETTRS
3C00: 00 41 41
3C03: 41 49 55
3C06: 63 41      LM        DFB  0,$41,$41,$41,$49,$55,$63,$41
                 *  LETTER "R"
3C08: 00 43 46
3C0B: 4C 7E 41
3C0E: 41 7E      LR        DFB  0,$43,$46,$4C,$7E,$41,$41,$7E
                 * REVERSE 'R'
                 REVR
3C10: 00 43 B9             DFB  0,$FF-$43,$FF-$46
3C13: B3 81                DFB  $FF-$4C,$FF-$7E
3C15: BE 41                DFB  $FF-$41,$FF-$41
3C17: 81                   DFB  $FF-$7E
                 *  SMALL "R"
                 SMLR
3C18: 00 40 40
3C1B: 40 48 78
3C1E: 40 00                DFB  0,$40,$40,$40,$48,$78,$40,0
                 *  LETTER "D"
3C20: 00 78 44
3C23: 44 44 44
3C26: 44 78      LD        DFB  0,$78,$44,$44,$44,$44,$44,$78
                 * LETTERS "O!"
                 LOH
3C28: 00 62 90
3C2B: 92 92 93
3C2E: 63 03                DFB  0,$62,$90,$92,$92,$93,$63,$03
                 * LETTER "E"
3C30: 00 7E 40
3C33: 40 78 40
3C36: 40 7E      LE        DFB  0,$7E,$40,$40,$78,$40,$40,$7E
                 * REVERSE 'E'
                 REVE
3C38: 00 7E BF             DFB  0,$FF-$7E,$FF-$40
3C3B: BF 78                DFB  $FF-$40,$FF-$78
3C3D: BF 40                DFB  $FF-$40,$FF-$40
3C3F: 81                   DFB  $FF-$7E
                 * LETTER "X"
3C40: 00 41 22
3C43: 14 08 14
3C46: 22 41      LX        DFB  0,$41,$22,$14,$08,$14,$22,$41
                 * REVERSE 'X'
                 REVX
3C48: 00 41 DD             DFB  0,$FF-$41,$FF-$22
3C4B: EB F7                DFB  $FF-$14,$FF-$08
3C4D: EB DD                DFB  $FF-$14,$FF-$22
3C4F: BE                   DFB  $FF-$41
                 * LETTER "T"
3C50: 00 08 08
3C53: 08 08 08
3C56: 08 7F      LT        DFB  0,$08,$08,$08,$08,$08,$08,$7F
                 * REVERSE 'T'
                 REVT
3C58: 00 08                DFB  0,$FF-$08
3C5A: F7 08                DFB  $FF-$08,$FF-$08
```

```
3C5C: F7 08              DFB  $FF-$08,$FF-$08
3C5E: 80 FF              DFB  $FF-$7F,$FF
                * LETTER "A"
3C60: 00 44 44
3C63: 44 7C 44
3C66: 28 10     LA       DFB  0,$44,$44,$44,$7C,$44,$28,$10
                * REVERSE 'A'
                REVA
3C68: 00 BB BB           DFB  0,$FF-$44,$FF-$44
3C6B: BB 7C              DFB  $FF-$44,$FF-$7C
3C6D: BB 28              DFB  $FF-$44,$FF-$28
3C6F: EF                 DFB  $FF-$10
                                               ;
                * LETTER "C"
3C70: 00 7F 40
3C73: 40 40 40
3C76: 40 7F     LC       DFB  0,$7F,$40,$40,$40,$40,$40,$7F
                * LETTER "L"
3C78: 00 7F 40
3C7B: 40 40 40
3C7E: 40 40     LL       DFB  0,$7F,$40,$40,$40,$40,$40,$40
                * LETTER "O"
3C80: 00 7F 41
3C83: 41 41 41
3C86: 41 7F     LO       DFB  0,$7F,$41,$41,$41,$41,$41,$7F
                * LETTERS FOR THE WORD "PRESENTS"
                ********************************
                LPR
3C88: 00 84 85
3C8B: 86 F7 94
3C8E: 94 F7              DFB  0,$84,$85,$86,$F7,$94,$94,$F7
                LE2
3C90: 00 BD 20
3C93: 20 B9 A1
3C96: A1 BD              DFB  0,$BD,$20,$20,$B9,$A1,$A1,$BD
                LSE
3C98: 00 EF 28
3C9B: 28 EE 08
3C9E: 08 EF              DFB  0,$EF,$28,$28,$EE,$08,$08,$EF
                LN
3CA0: 00 44 4C
3CA3: 4C 54 54
3CA6: 64 45              DFB  0,$44,$4C,$4C,$54,$54,$64,$45
                LTS
3CA8: 00 47 40
3CAB: 40 47 44
3CAE: 44 F7              DFB  0,$47,$40,$40,$47,$44,$44,$F7
                LS
3CB0: 00 C0 40
3CB3: 40 C0 00
3CB6: 00 C0              DFB  0,$C0,$40,$40,$C0,$00,$00,$C0
                                               ;
3CB8: 00 00 00
3CBB: 00 00 00
3CBE: 00 00 00
3CC1: 00        NULL     DFB  0,0,0,0,0,0,0,0,0,0
                * LETTER "G"
                ********************************
                LG
3CC2: 00 7C 84
3CC5: 8E 80 80
3CC8: 84 7C 00           DFB  $00,$7C,$84,$8E,$80,$80,$84,$7C,0
                * LETTER "V"
                ********************************
                LV
3CCB: 00 0C 0C
```

```
3CCE: 12 12 21
3CD1: 21 21                DFB  0,$0C,$0C,$12,$12,$21,$21,$21
                                                  ;
                  POS
3CD3: 85 02                STA  ATWAIT
3CD5: 95 20                STA  ATSAIN,X
3CD7: 29 0F                AND  #$0F
3CD9: A8                   TAY
3CDA: A5 DD                LDA  BAND
3CDC: A5 DD                LDA  BAND
3CDE: A5 DD                LDA  BAND
3CE0: A5 DD                LDA  BAND          ;CY 20.
                  POS10
3CE2: 88                   DEY
3CE3: 10 FD                BPL  POS10
3CE5: 95 10                STA  ATSALA,X
3CE7: 85 02                STA  ATWAIT
3CE9: 85 2A                STA  ATMVIN
3CEB: 60                   RTS
                                                  ;
                  * POSITIONS FOR CHANNEL SELECT->
                  LETPOS
3CEC: 2E 36 3E
3CEF: 46 4E                DFB  $2E,$36,$3E,$46,$4E
```

```
                    OBJ  $8CF8
                    ORG  $3CF4
         ********************************
         * ORCHARD SCREEN PAINT FILE    *
         ********************************
                    PUT  MR.DO.ORCHARD
         */ MR.DO.ORCHARD LASTED:9/14/83.
         ********************************
         PAINT
         * JP INTO POS SA & SB TO GET STARTED.
         ********************************
3CF4: A9 00         LDA  #SCRCOL
3CF6: 85 02         STA  ATWAIT
3CF8: 85 09         STA  ATSCOL      ;COLOR SCREEN.
                                     ;
3CFA: A2 07         LDX  #7
3CFC: 86 DD         STX  BAND        ;INIT BAND NUM FOR 8 BANDS.
3CFE: A5 8F         LDA  FCOLOR
3D00: 85 08         STA  ATFCOL
3D02: A9 10         LDA  #$10        ;2X PWR BALL.
3D04: 8D 04 00      STAH ATACTL      ;CY 20.
                                     ;PAINT ASYM FIELD-->
3D07: B5 98         LDA  FR1L,X
3D09: 85 0E         STA  ATFR1
3D0B: B5 A0         LDA  FR2L,X
3D0D: 85 0F         STA  ATFR2
3D0F: B5 B0         LDA  FR1R,X
3D11: 85 0E         STA  ATFR1
3D13: B5 A8         LDA  FR2R,X
3D15: 85 0F         STA  ATFR2       ;CY 48.
                                     ;
                                     ;KILL 19 CY BEFORE JMP->
3D17: A0 03         LDY  #3
         DLAY15
3D19: 88            DEY
3D1A: D0 FD         BNE  DLAY15
3D1C: A6 DD         LDX  BAND
3D1E: 4C FC 3D      JMP  POSA-5
                                     ;CY 70.
```

```
                                                 ;
                * A NEW BAND IS ABOUT TO BEGIN-->
                *---------------------------------
                                                 ;Y=5
                ******************************
                * START OF:    ASYM              *
                *              POS SA            *
                *              POS SB SEQUENCE.  *
                ******************************
3D21: 85 08              STA   ATFCOL
3D23: 85 02              STA   ATWAIT
                ASYM
3D25: B1 E5              LDA   (ADAT),Y
3D27: 85 1B              STA   ATADAT
3D29: F0 77              BEQ   ASYMA         ;JP SA DONE.
3D2B: B1 F6              LDA   (BDAT),Y
3D2D: 85 1C              STA   ATBDAT
3D2F: EA                 NOP                 ;CY 20.
                                             ;ASYM FIELD-->
3D30: B5 98              LDA   FR1L,X
3D32: 85 0E              STA   ATFR1
3D34: B5 A0              LDA   FR2L,X
3D36: 85 0F              STA   ATFR2
3D38: B5 B0              LDA   FR1R,X
3D3A: 85 0E              STA   ATFR1
3D3C: B5 A8              LDA   FR2R,X
3D3E: 85 0F              STA   ATFR2         ;CY 48.
                                             ;
3D40: B1 F6              LDA   (BDAT),Y
3D42: F0 28              BEQ   ASYMB         ;JP SB DONE.
3D44: B5 DE              LDA   LODATA,X      ;SET UP DATA PTRS FOR NEXT BAND.
3D46: 85 E5              STA   ADAT
3D48: B5 EF              LDA   LODATB,X
3D4A: 85 F6              STA   BDAT
3D4C: A0 11              LDY   #17           ;LN+1.
3D4E: B1 E5              LDA   (ADAT),Y      ;CY 76.
                                             ;
```

```
                   * NEITHER SPRITE IS DONE (CONT W/DATA).
                   ********************************
                   NPOSA2
3D50: 85 1B                 STA   ATADAT
3D52: A9 00                 LDA   #SCRCOL
3D54: 8D 08 00              STAH  ATFCOL      ;FIELD OFF.
3D57: B1 F6                 LDA   (BDAT),Y
3D59: 85 1C                 STA   ATBDAT      ;CY 17.
3D5B: 88                    DEY
3D5C: 06 DC                 ASL   PTR         ;SHIFT PAGE PTR.
3D5E: 85 02                 STA   ATWAIT
                   NPOSB2
3D60: B1 E5                 LDA   (ADAT),Y
3D62: 85 1B                 STA   ATADAT
3D64: B1 F6                 LDA   (BDAT),Y
3D66: 85 1C                 STA   ATBDAT      ;CY 16.
3D68: 88                    DEY
3D69: 4C 2E 3E              JMP   ASYMV-4     ;PICK UP AT ASYM W/MOVE.
```

```
                   * ONLY SB IS TO BE POSED-->
                   ******************************
                   ASYMB
3D6C: B5 DE                   LDA  LODATA,X
3D6E: 85 E5                   STA  ADAT
3D70: B5 EF                   LDA  LODATB,X
3D72: 85 F6                   STA  BDAT
3D74: A0 11                   LDY  #17          ;LN+1.
3D76: EA                      NOP
3D77: A9 00                   LDA  #SCRCOL      ;CY 76.
                   NPOSA1
3D79: 85 08                   STA  ATFCOL
3D7B: B1 E5                   LDA  (ADAT),Y
3D7D: 85 1B                   STA  ATADAT
3D7F: 88                      DEY
3D80: A9 0E                   LDA  #WHITE       ;DEFAULT COLOR.
3D82: 85 07                   STA  ATBCOL
                                                ;PREPARE TO POS SB->
3D84: B5 F8                   LDA  BPOF,X
3D86: 85 21                   STA  ATSBIN
3D88: 29 0F                   AND  #$0F
3D8A: AA                      TAX
                                                ;NO PAGE SETUP NEEDED BUT->
3D8B: 06 DC                   ASL  PTR          ;SHIFT PAGE FLAGS.
3D8D: 85 02                   STA  ATWAIT
                   POSB1
3D8F: B1 E5                   LDA  (ADAT),Y
3D91: 85 1B                   STA  ATADAT
3D93: 88                      DEY
3D94: A5 DD                   LDA  BAND         ;NOP.
3D96: B1 E5                   LDA  (ADAT),Y     ;A DATA NEXT LINE.
                                                ;CY 18.
                   LATB1
3D98: CA                      DEX
3D99: 10 FD                   BPL  LATB1
3D9B: A6 DD                   LDX  BAND
3D9D: 85 11                   STA  ATSBLA       ;LATCH SB.
3D9F: 4C 30 3E                JMP  ASYMV-2      ;PICK UP AT ASYM W/MOVE.
```

```
                   * AT LEAST SA MUST BE POSED->
                   *******************************
                   ASYMA
3DA2: B1 F6                 LDA  (BDAT),Y
3DA4: 8D 1C 00              STAH ATBDAT      ;CY 20
                                             ;ASYM FIELD-->
3DA7: B5 98                 LDA  FR1L,X
3DA9: 85 0E                 STA  ATFR1
3DAB: B5 A0                 LDA  FR2L,X
3DAD: 85 0F                 STA  ATFR2
3DAF: B5 B0                 LDA  FR1R,X
3DB1: 85 0E                 STA  ATFR1
3DB3: B5 A8                 LDA  FR2R,X
3DB5: 85 0F                 STA  ATFR2       ;CY 48.
                                             ;
3DB7: B1 F6                 LDA  (BDAT),Y
3DB9: F0 39                 BEQ  ASYMAB      ;JP BOTH SPRITES MUST BE POSITIONE
D.
3DBB: B5 DE                 LDA  LODATA,X    ;SET UP DATA PTRS FOR NEXT BAND.
3DBD: 85 E5                 STA  ADAT
3DBF: B5 EF                 LDA  LODATB,X
3DC1: 85 F6                 STA  BDAT
3DC3: A0 11                 LDY  #17         ;LN+1
3DC5: B1 F6                 LDA  (BDAT),Y    ;CY 76.
                                             ;
                   * ONLY SA MUST BE POSED-->
                   *******************************
                   POSA1
3DC7: 85 1C                 STA  ATBDAT
3DC9: A9 00                 LDA  #SCRCOL
3DCB: 8D 08 00              STAH ATFCOL      ;FIELD OFF.
3DCE: B5 E7                 LDA  APOF,X
3DD0: 8D 20 00              STAH ATSAIN
3DD3: 29 0F                 AND  #$0F
3DD5: AA                    TAX              ;CY 21.
                   LATCH1
3DD6: CA                    DEX
3DD7: 10 FD                 BPL  LATCH1
3DD9: 85 10                 STA  ATSALA      ;LATCH SA.
3DDB: A6 DD                 LDX  BAND
3DDD: 85 02                 STA  ATWAIT
                                             ;
                   * DON'T POS SPRITE B (CONT W/DATA).
                   *******************************
                   NPOSB
3DDF: 88                    DEY
3DE0: B1 F6                 LDA  (BDAT),Y
3DE2: 85 1C                 STA  ATBDAT
3DE4: A9 B6                 LDA  #BLUE       ;DEFAULT COLOR.
3DE6: 85 06                 STA  ATACOL
3DE8: 88                    DEY
                                             ;SELECT SA PAGE->
3DE9: A9 3A                 LDA  #>IMG1
3DEB: 06 DC                 ASL  PTR
3DED: 69 00                 ADC  #0
3DEF: 85 E6                 STA  HIDATA
                                             ;
3DF1: 4C 2E 3E              JMP  ASYMV-4     ;PICK UP AT ASYMV.
```

```
                * BOTH SA & SB MUST BE POSED-->
                *******************************
                ASYMAB
                                                ;CY 56.
3DF4: B5 DE                  LDA  LODATA,X      ;SET UP DATA PTRS FOR NEXT BAND.
3DF6: 85 E5                  STA  ADAT
3DF8: B5 EF                  LDA  LODATB,X
3DFA: 85 F6                  STA  BDAT
3DFC: A9 00                  LDA  #SCRCOL
3DFE: 8D 08 00               STAH ATFCOL        ;CY 76.
                POSA
3E01: B5 E7                  LDA  APOF,X
3E03: 8D 20 00               STAH ATSAIN
3E06: 29 0F                  AND  #$0F
3E08: A8                     TAY
                                                ;FIG SA PAGE->
3E09: A9 3A                  LDA  #>IMG1
3E0B: 06 DC                  ASL  PTR
3E0D: 69 00                  ADC  #0            ;CY 21.
                LAT
3E0F: 88                     DEY
3E10: 10 FD                  BPL  LAT
3E12: 85 10                  STA  ATSALA        ;LATCH SA.
3E14: 85 E6                  STA  HIDATA
3E16: A9 0E                  LDA  #WHITE        ;DEFAULT COLOR.
3E18: 85 02                  STA  ATWAIT
                POSB
3E1A: 85 07                  STA  ATBCOL        ;MR DO COLOR.
3E1C: A9 B6                  LDA  #BLUE         ;DEFAULT COLOR.
3E1E: 85 06                  STA  ATACOL        ;DIG COLOR.
3E20: B5 F8                  LDA  BPOF,X
3E22: 85 21                  STA  ATSBIN
3E24: 29 0F                  AND  #$0F
3E26: A8                     TAY                ;CY 19.
                LATB
3E27: 88                     DEY
3E28: 10 FD                  BPL  LATB
3E2A: A0 0F                  LDY  #15           ;LN-1
3E2C: 85 11                  STA  ATSBLA        ;LATCH SB.
3E2E: B1 E5                  LDA  (ADAT),Y
3E30: 85 02                  STA  ATWAIT
                                                ;
```

```
                  * ASYM FIELD W/FINE POSITIONING
                  *****************************
                  ASYMV
3E32: 85 2A                 STA  ATMVIN     ;FINE POSITION.
3E34: 85 1B                 STA  ATADAT
3E36: A5 8F                 LDA  FCOLOR
3E38: 85 08                 STA  ATFCOL     ;FIELD ON.
3E3A: B1 F6                 LDA  (BDAT),Y
3E3C: 85 1C                 STA  ATBDAT     ;CY 20.
                                            ;ASYM FIELD->
3E3E: B5 98                 LDA  FR1L,X
3E40: 85 0E                 STA  ATFR1
3E42: B5 A0                 LDA  FR2L,X
3E44: 85 0F                 STA  ATFR2
3E46: B5 B0                 LDA  FR1R,X
3E48: 85 0E                 STA  ATFR1
3E4A: B5 A8                 LDA  FR2R,X
3E4C: 85 0F                 STA  ATFR2      ;CY 48.
                                            ;
                                            ;DO SA COLOR TEST HERE-->
3E4E: A9 00                 LDA  #<CHERRY
3E50: C5 F6                 CMP  BDAT
3E52: F0 04                 BEQ  YCHRY      ;JP IF CHERRY.
3E54: A9 00                 LDA  #0
3E56: F0 06                 BEQ  NCHRY
                  YCHRY
3E58: A9 44                 LDA  #$44       ;PAL RED.
3E5A: 85 07                 STA  ATBCOL     ;COLOR CHERRY.
3E5C: B5 90                 LDA  CHERRYC,X
                  NCHRY
3E5E: 85 05                 STA  ATBCTL
3E60: 88                    DEY
3E61: A9 00                 LDA  #SCRCOL    ;FIELD OFF.
3E63: 85 02                 STA  ATWAIT     ;CY 75.(WORST CASE).
```

```
                  * SPRITE DATA LINE 1--->
                  * (ALT. COLOR TESTS,MIS TESTS).
                  *******************************
                  SDAT1
3E65: 85 08                   STA  ATFCOL       ;FLD OFF.
3E67: B1 E5                   LDA  (ADAT),Y
3E69: 85 1B                   STA  ATADAT
3E6B: B1 F6                   LDA  (BDAT),Y
3E6D: 85 1C                   STA  ATBDAT       ;CY 19.
                                                ;
3E6F: A9 3A                   LDA  #<APEND      ;E-O-APPLE IMAGES.
3E71: C5 E5                   CMP  ADAT
3E73: 90 04                   BCC  MTEST        ;JP NOT APPLE.
3E75: A9 28                   LDA  #ORANGE
3E77: 85 06                   STA  ATACOL       ;COLOR APPLE.
                                                ;CY 31
                  MTEST
3E79: A5 BA                   LDA  MSBAND
3E7B: C5 DD                   CMP  BAND
3E7D: D0 08                   BNE  NOMIS        ;JP NOT MISSLE BAND.
3E7F: C4 B9                   CPY  MISLN
3E81: D0 04                   BNE  NOMIS        ;JP NOT MISSLE LINE.
3E83: A9 02                   LDA  #2
3E85: 85 1D                   STA  ATENMA       ;TURN MISSLE ON.
                  NOMIS
3E87: 88                      DEY
3E88: 85 02                   STA  ATWAIT
```

```
                * SPRITE DATA,END-OF-BAND & END-OF-PLAYFIELD TESTING.
                ********************************************
                SDAT2
3E8A: B1 E5                LDA  (ADAT),Y
3E8C: 85 1B                STA  ATADAT
3E8E: B1 F6                LDA  (BDAT),Y
3E90: 85 1C                STA  ATBDAT
3E92: A5 BA                LDA  MSBAND
3E94: C5 DD                CMP  BAND        ;CY 22.
3E96: F0 0A                BEQ  MIS1        ;J IF MIS BAND.
3E98: CA                   DEX              ;DEC BAND INCASE NUBAND.
3E99: EA                   NOP
3E9A: EA                   NOP
3E9B: EA                   NOP
3E9C: EA                   NOP
3E9D: EA                   NOP
3E9E: EA                   NOP
3E9F: 4C B4 3E             JMP  CYCL41      ;CY 41
                MIS1
3EA2: C4 B9                CPY  MISLN       ;CY 28.
3EA4: F0 07                BEQ  MIS2        ;J IF MIS LN.
3EA6: CA                   DEX              ;DEC BAND INCASE NUBAND.
3EA7: EA                   NOP
3EA8: EA                   NOP
3EA9: EA                   NOP
3EAA: 4C B4 3E             JMP  CYCL41      ;CY 41
                MIS2
3EAD: A9 02                LDA  #2          ;MIS ON.
3EAF: 85 1D                STA  ATENMA      ;CY 36.
3EB1: A6 DD                LDX  BAND        ;DEX INCASE NU BAND TIME.
3EB3: CA                   DEX              ;CY 41
                CYCL41
                                            ;
3EB4: 88                   DEY
3EB5: F0 34                BEQ  NUBAND      ;MUST JP A CY 46.
3EB7: A6 DD                LDX  BAND        ;GET CORRECT BAND NUM BACK.
3EB9: A5 8F                LDA  FCOLOR
3EBB: 85 02                STA  ATWAIT
```

```
                 * ASYM FIELD W/SPRITE DATA.
                 ******************************
                 ASYMD
3EBD: 85 08                    STA   ATFCOL
3EBF: B1 E5                    LDA   (ADAT),Y
3EC1: 85 1B                    STA   ATADAT
3EC3: B1 F6                    LDA   (BDAT),Y
3EC5: 8D 1C 00                 STAH  ATBDAT       ;CY 20.
                                                  ;ASYM FIELD->
3EC8: B5 98                    LDA   FR1L,X
3ECA: 85 0E                    STA   ATFR1
3ECC: B5 A0                    LDA   FR2L,X
3ECE: 85 0F                    STA   ATFR2
3ED0: B5 B0                    LDA   FR1R,X
3ED2: 85 0E                    STA   ATFR1
3ED4: B5 A8                    LDA   FR2R,X
3ED6: 85 0F                    STA   ATFR2        ;CY 48.
                                                  ;
3ED8: 88                       DEY

3ED9: EA                       NOP
3EDA: EA                       NOP
3EDB: EA                       NOP
3EDC: EA                       NOP
3EDD: EA                       NOP
3EDE: EA                       NOP
                                                  ;
3EDF: A9 00                    LDA   #0
3EE1: 85 1D                    STA   ATENMA       ;TURN MISSLE OFF.
3EE3: AE DD 00                 LDXH  BAND
3EE6: A9 00                    LDA   #SCRCOL
3EE8: 4C 65 3E                 JMP   SDAT1        ;CY 76.
                                                  ;
```

```
                  NUBAND
3EEB: 85 2B              STA  ATREMV
3EED: C6 DD              DEC  BAND
3EEF: 30 0B              BMI  FIN         ;JP DONE ALL BANDS.
                                          ;
                  * PREPARE TO START A NEW BAND  *
                  ********************************
3EF1: A9 00              LDA  #0
3EF3: 85 05              STA  ATBCTL      ;1X,1C=DEFAULT CONTROL.
3EF5: 85 1D              STA  ATENMA      ;MIS OFF.
3EF7: A5 8F              LDA  FCOLOR
3EF9: 4C 21 3D           JMP  ASYM-4      ;CY 70.
                  * PLAYFIELD IS DONE-->
                  ********************************
                  FIN
3EFC: 85 02              STA  ATWAIT
3EFE: A9 00              LDA  #0
3F00: 85 1B              STA  ATADAT
3F02: 85 1C              STA  ATBDAT
3F04: 85 1D              STA  ATENMA      ;PWR BALL OFF.
                  * PAINT A BAR AT BOTTOM OF PLAYFIELD->
                  ********************************
3F06: A9 FF              LDA  #$FF
                                          ;FLD ON->
3F08: A4 8F              LDY  FCOLOR
3F0A: 84 08              STY  ATFCOL
3F0C: 85 0E              STA  ATFR1
3F0E: 85 0F              STA  ATFR2
                                          ;
3F10: 85 02              STA  ATWAIT
3F12: A9 00              LDA  #SCRCOL
3F14: 85 08              STA  ATFCOL
3F16: 85 02              STA  ATWAIT
3F18: 85 02              STA  ATWAIT      ;PAL(3)
                                          ;
3F1A: A5 8F              LDA  FCOLOR
3F1C: 85 08              STA  ATFCOL
3F1E: 85 02              STA  ATWAIT
3F20: A9 00              LDA  #SCRCOL
3F22: 85 08              STA  ATFCOL      ;FLD OFF.
3F24: A2 00              LDX  #0
3F26: 86 0D              STX  ATFR0
3F28: 86 0E              STX  ATFR1
3F2A: 86 0F              STX  ATFR2
                                          ;
```

```
3F2C: A9 39                   LDA  #>MRDOLL
3F2E: 85 F0                   STA  TEMP2
3F30: 85 F2                   STA  TEMP4        ;SETUP INV PTRS HI.
3F32: A9 22                   LDA  #<MRDOLL     ;PAL.
3F34: 85 EF                   STA  TEMP1
3F36: 85 F1                   STA  TEMP3        ;IBID LO.
3F38: A2 34                   LDX  #<NULLB      ;NULL IMG.
                                                ;
                     * LATCH SPRITES FOR INVENTORY->
                     ********************************
3F3A: A0 04                   LDY  #4
3F3C: 85 02                   STA  ATWAIT
                     POSI
3F3E: 88                      DEY
3F3F: 10 FD                   BPL  POSI
3F41: 85 10                   STA  ATSALA
3F43: EA                      NOP
3F44: EA                      NOP
3F45: EA                      NOP
3F46: EA                      NOP
3F47: EA                      NOP
3F48: A5 DD                   LDA  BAND
3F4A: 85 11                   STA  ATSBLA
                                                ;
3F4C: 85 02                   STA  ATWAIT
3F4E: A9 34                   LDA  #GREEN
3F50: 85 09                   STA  ATSCOL
3F52: A9 0E                   LDA  #WHITE
3F54: 85 06                   STA  ATACOL
3F56: 85 07                   STA  ATBCOL
                                                ;
                     * PAINT MR DO INVENTORY-->
                     ********************************
3F58: A4 DB                   LDY  DOINV        ;# MR DO'S LEFT.
3F5A: B9 8F 3F                LDA  INVTBL,Y
3F5D: 30 04                   BMI  INV2         ;JP INV<4 BUT >0.
3F5F: D0 04                   BNE  INV3         ;JP SOME DO'S LEFT.
3F61: 86 EF                   STX  TEMP1        ;SA=NULL
                     INV2
3F63: 86 F1                   STX  TEMP3        ;SB= NULL.
                     INV3
3F65: 85 04                   STA  ATACTL
3F67: 4A                      LSR
3F68: 4A                      LSR
3F69: 4A                      LSR
3F6A: 4A                      LSR
3F6B: 85 05                   STA  ATBCTL
                                                ;
                     * PAINT MR.DO INVENTORY->
                     ********************************
3F6D: A0 03                   LDY  #3           ;PAL (4 LINES)
                     PAL4
3F6F: 85 02                   STA  ATWAIT
3F71: 88                      DEY
3F72: 10 FB                   BPL  PAL4
                                                ;
                     INVENT
3F74: A0 0F                   LDY  #15          ;PAL (8 LINES)
                     DOLOOP
3F76: 85 02                   STA  ATWAIT
3F78: B1 EF                   LDA  (TEMP1),Y
3F7A: 85 1B                   STA  ATADAT
3F7C: B1 F1                   LDA  (TEMP3),Y
3F7E: 85 1C                   STA  ATBDAT
3F80: 88                      DEY
```

```
3F81: 10 F3              BPL  DOLOOP      ;PAINT MR.DO INVENTORY.
3F83: C8                 INY
3F84: 84 1B              STY  ATADAT
3F86: 84 1C              STY  ATBDAT
3F88: 84 1B              STY  ATADAT
3F8A: 84 1C              STY  ATBDAT
3F8C: 4C 07 30           JMP  BVISW       ;GO DO BOTVI.
               INVTBL
3F8F: 00 80 81
3F92: 83 03 13
3F95: 33                 DFB  0,$80,$81,$83,$03,$13,$33
```

```
                 ********************************
                 * DISPLAY RTN FOR 6 SPRITES    *
                 ********************************
                          PUT  MR.DO.SCORE RTN
                 */SCORE RTN LAST EDIT: 6/23/83
                 *.....SCORE.....
                 *FUNCTION   SCORE DISPLAYS A 6 DIGIT SCORE
                 *
                 SCORE
3F96: 85 02               STA  ATWAIT
3F98: A2 00               LDX  #BLACK
3F9A: 86 09               STX  ATSCOL
3F9C: A9 03               LDA  #3
3F9E: 85 02               STA  ATWAIT
3FA0: 85 04               STA  ATACTL      ;1X 3C 8S
3FA2: 85 05               STA  ATBCTL
3FA4: 85 25               STA  ATASEL      ;GET READY TO LOAD OUTER BUFF
3FA6: 85 26               STA  ATBSEL
                 *ADJ INCR SO SPRITES ARE SIDE BY SIDE
3FA8: A9 10               LDA  #$10
3FAA: 85 20               STA  ATSAIN
3FAC: 0A                  ASL
3FAD: 85 21               STA  ATSBIN
3FAF: EA                  NOP
3FB0: EA                  NOP
3FB1: EA                  NOP
3FB2: EA                  NOP
3FB3: EA                  NOP
3FB4: EA                  NOP
3FB5: EA                  NOP
3FB6: 85 10               STA  ATSALA      ;LATCH SPRITE A
3FB8: 85 11               STA  ATSBLA      ;B 9 PIXLES LATER
                 * ENTER HERE FOR 6 SPRITES W/O POS.
                 SCORE1
3FBA: 85 02               STA  ATWAIT
3FBC: 85 2A               STA  ATMVIN      ;MOVE FINE INCR
                                           ;
3FBE: A9 07               LDA  #7
3FC0: 85 EF               STA  TEMP1       ;LINE COUNT
                 *ACTUAL PAINTING OF DIGITS
                 SC4
3FC2: A4 EF               LDY  TEMP1
3FC4: B1 F2               LDA  (PD100K),Y ;GET 100K DATA
3FC6: 85 1B               STA  ATADAT      ;WRITE TO OUTER BUFF(UNSEEN)
3FC8: 85 02               STA  ATWAIT
3FCA: B1 F4               LDA  (PD10K),Y   ;GET 10K DATA
3FCC: 85 1C               STA  ATBDAT      ;TO OUTER BUFF(100K SEEN NOW)
3FCE: B1 F6               LDA  (PD1K),Y    ;GET 1K DATA
3FD0: 85 1B               STA  ATADAT      ;TO BUFFER (10K SEEN NOW)
3FD2: B1 F8               LDA  (PD100),Y   ;GET 100'S DATA
3FD4: 85 F0               STA  TEMP2       ;TUCK AWAY
3FD6: B1 FA               LDA  (PD10),Y    ;GET 10'S DATA
3FD8: AA                  TAX              ;TUCK AWAY IH X
3FD9: B1 FC               LDA  (PD1),Y     ;1'S DATA
3FDB: A8                  TAY              ;SAVE IT FOR TIME CRITICAL
3FDC: A5 F0               LDA  TEMP2       ;RETRIEVE 100'S DATA
3FDE: 85 1C               STA  ATBDAT      ;100 TO BUFF, 1K SEEN
3FE0: 86 1B               STX  ATADAT      ;10 TO BUFF, 100 SEEN NOW
3FE2: 84 1C               STY  ATBDAT      ;1 TO BUFF, 10 SEEN NOW
3FE4: 84 1B               STY  ATADAT      ;DUMMY WRITE TO BUFF,1 SEEN NOW
3FE6: C6 EF               DEC  TEMP1       ;LINE COUNT
3FE8: 10 D8               BPL  SC4         ;LOOPTILL DONE
                 *
                 *RESET CONTROL AND DATA REGS
3FEA: A9 00               LDA  #0
```

```
3FEC: 85 1B          STA  ATADAT
3FEE: 85 1C          STA  ATBDAT
3FF0: 85 2B          STA  ATREMV
               *     STA ATASEL       ;SEL IMMED MODE.
               *     STA ATBSEL
3FF2: 60             RTS
```

```
                        OBJ  $9000
                        ORG  $3FFC
3FFC: CE 30             DA   INITSW
                   END
```

--End assembly--

2 bytes

Errors: 0

Symbol table - alphabetical order:

```
   ADAT    =$E5       ADUR    =$88       AIDX    =$86       ALFSET  =$33E0
   ALPHA   =$8B       AMUSFW  =$3697     AMUSVT  =$36F4     ANIM8   =$8E
   ANIM9   =$3054     APBAND  =$D0       APEND   =$3A3A     APFALL  =$8D
   APIMG   =$323C     APLFR5  =$312F  ?  APLFRM  =$312A     APOF    =$E7
?  APPLE0  =$3A00     APPLE1  =$3A00     APPLE2  =$3A0E     APPLE3  =$3A1C
   APPLE4  =$3A2A     APPLE5  =$3A38     APPOF   =$D4       APR50   =$30F1
   APRAM   =$30C5  ?  AS1FW   =$3697  ?  AS1VT   =$36F4  ?  AS2FW   =$36C8
?  AS2VT   =$3725  ?  AS3FW   =$36E8  ?  AS3VT   =$3745     ASYM    =$3D25
   ASYMA   =$3DA2     ASYMAB  =$3DF4     ASYMB   =$3D6C  ?  ASYMD   =$3EBD
   ASYMV   =$3E32     ATACOL  =$06       ATACTL  =$04       ATADAT  =$1B
   ATADIV  =$17       ATASEL  =$25       ATAVOL  =$19       ATAWAV  =$15
   ATBCOL  =$07       ATBCTL  =$05       ATBDAT  =$1C       ATBDIV  =$18
   ATBLNK  =$01       ATBSEL  =$26       ATBVOL  =$1A       ATBWAV  =$16
   ATENFM  =$1F       ATENMA  =$1D    ?  ATENMB  =$1E       ATFCOL  =$08
?  ATFCTL  =$0A       ATFR0   =$0D       ATFR1   =$0E       ATFR2   =$0F
?  ATFSEL  =$27    ?  ATHORC  =$03    ?  ATJBA   =$3C    ?  ATJBB   =$3D
   ATMVIN  =$2A       ATREMV  =$2B       ATSAIN  =$20       ATSALA  =$10
   ATSBIN  =$21       ATSBLA  =$11       ATSCOL  =$09    ?  ATSYNC  =$00
   ATWAIT  =$02       BAND    =$DD       BAND1   =$34B3     BDAT    =$F6
   BDUR    =$89    ?  BEEP    =$3817  ?  BELLS   =$3823     BIDX    =$87
   BLACK   =$00       BLANK   =$38E0     BLUE    =$B6       BMUSFW  =$3751
   BMUSVT  =$37AE  ?  BOOP    =$381D     BOTOFF  =$3677  ?  BOTTIM  =$AC
   BOTVI   =$202E     BPOF    =$F8    ?  BROWN   =$12    ?  BS1FW   =$3751
?  BS1VT   =$37AE  ?  BS2FW   =$3782  ?  BS2VT   =$37DF  ?  BS3FW   =$37A2
?  BS3VT   =$37FF     BVISW   =$3007     CDAT    =$3475  ?  CHER1   =$382B
?  CHER2   =$3838  ?  CHER3   =$3845  ?  CHER4   =$3852  ?  CHER5   =$385F
?  CHER6   =$386C     CHERRY  =$3900     CHERRY5 =$346D     CHERRYC =$90
?  CHERRYT =$8C       CHRPOS  =$3687     COLECO  =$39AA     COMP1   =$3191
   COMP15  =$319A     COMP2   =$31A2     COMP3   =$31B2     COMPET  =$318C
   CPETE   =$31AF     CPETE2  =$31B7     CYCL41  =$3EB4     DATA1   =$3890
   DATA2   =$3C00  ?  DEADSND =$380F     DIG12   =$3109     DIG13   =$3112
   DIG15   =$3115     DIG17   =$3122  ?  DIG18   =$3127     DIG33   =$3144
   DIG40   =$3153     DIG45   =$3162     DIG50   =$3171     DIG60   =$317D
   DIG99   =$3189     DIGBAND =$BE       DIGDAT  =$C4    ?  DIGDIR  =$C6
   DIGIMG  =$324C  ?  DIGINV  =$8A    ?  DIGIQ   =$CC       DIGITS  =$3890
   DIGLL   =$3A70     DIGLR   =$3A4F     DIGPOF  =$C1    ?  DIGSPD  =$C8
?  DIGTIM  =$CA       DLAY15  =$3D19     DO1     =$3378     DOBAND  =$BD
   DODAT   =$C3       DODEAD  =$20       DOINV   =$DB       DOLOOP  =$3F76
   DOPOF   =$C0       DOTIME  =$3488  ?  DOWND   =$01    ?  DOWNI   =$04
   DUGLL   =$3A92     DUGLR   =$3AB4     DUGRL   =$3B20     DUGRR   =$3B00
   EIGHT   =$38D0     END     =$3FFE     FCOLOR  =$8F       FIN     =$3EFC
   FIRST   =$31CD     FIVE    =$38B8     FOUR    =$38B0     FR1L    =$98
   FR1R    =$B0       FR2L    =$A0       FR2R    =$A8       FRAMEH  =$85
   FRAMEL  =$84       FTEST   =$347F     GAME    =$80       GAMETB  =$39C3
   GAMOVR  =$40       GAMSPD  =$327B  ?  GOLD    =$16       GREEN   =$34
   HIDATA  =$E6       HIDATB  =$F7       HOLD10  =$335B     HOLD7   =$3329
   HOLD9   =$3340     HOLDUP  =$3310     ICHERRY =$3453     IMG1    =$3A00
?  IMG2    =$3B00     IMG5    =$32B6     IMG6    =$32E1     INITSW  =$300E
   INV2    =$3F63     INV3    =$3F65  ?  INVENT  =$3F74     INVTBL  =$3F8F
?  IOADIR  =$0281  ?  IOBDIR  =$0283     ISA     =$3086  ?  JOYADN  =$20
```

```
?  IOADIR   =$0281    ?  IOBDIR   =$0283       ISA      =$3086    ?  JOYADN   =$20
?  JOYALT   =$40      ?  JOYART   =$80      ?  JOYAUP   =$10      ?  JOYBDN   =$02
?  JOYBLT   =$04      ?  JOYBRT   =$08      ?  JOYBUP   =$01      ?  JOYDAT   =$0280
   LA       =$3C60       LASTJY   =$B8         LAT      =$3E0F       LATB     =$3E27
   LATB1    =$3D98       LATCH1   =$3DD6    ?  LBLUE    =$96         LC       =$3C70
   LD       =$3C20       LE       =$3C30       LE2      =$3C90    ?  LEFTD    =$03
?  LEFTI    =$0C      ?  LETIMG   =$3252       LETPOS   =$3CEC       LETRA    =$3BCD
   LETRE    =$3B49       LETRR    =$3BAC       LETRT    =$3B8B       LETRX    =$3B6A
   LETTBL   =$39CF    ?  LETTRS   =$3C00       LG       =$3CC2       LL       =$3C78
   LM       =$3C00       LN       =$3CA0       LO       =$3C80       LODATA   =$DE
   LODATB   =$EF         LOH      =$3C28       LPR      =$3C88       LR       =$3C08
   LS       =$3CB0       LSE      =$3C98       LSTLFT   =$3052       LT       =$3C50
   LTS      =$3CA8       LV       =$3CCB       LX       =$3C40       MDON     =$34E7
   MDPOF    =$34EB       MDPTL    =$3248       MDPTR    =$324A       MIDTIM   =$BC
   MIS1     =$3EA2       MIS2     =$3EAD    ?  MISDIR   =$BC         MISLN    =$B9
   MISPOF   =$BB         MODE     =$DA      ?  MRDOIMG  =$3248       MRDOLL   =$3922
   MRDOLR   =$3988       MRDORL   =$3944       MRDORR   =$3966       MRDOT1   =$39B6
   MRDOTB   =$39B7       MSBAND   =$BA         MTEST    =$3E79       MUS15    =$3565
   MUS2     =$3532       MUS25    =$356E       MUS5     =$3546       MUS50    =$3570
   MUS55    =$3588       MUS65    =$35A7       MUS75    =$35B0       MUSIC    =$352B
   MUX      =$CE         NCHRY    =$3E5E       NDIG     =$3038       NINE     =$38D8
   NODO     =$34BA       NOMIS    =$3E87       NOPWR    =$3451       NORK     =$3068
   NORM     =$33EF       NORMAP   =$30C1       NOTSEL   =$3353    ?  NPOSA1   =$3D79
?  NPOSA2   =$3D50    ?  NPOSB    =$3DDF    ?  NPOSB2   =$3D60       NUBAND   =$3EEB
   NULL     =$3CB8       NULL1    =$3AE4       NULLB    =$3934       NULLTB   =$39BD
   OK2      =$301F       ONE      =$3898       ORANGE   =$28         ORCHARD  =$338B
   ORK      =$306B       ORKSCR   =$329D       OVERTB   =$39C9       PAINT    =$3CF4
   PAL4     =$3F6F       PAL6     =$33F9       PD1      =$FC         PD10     =$FA
   PD100    =$F8         PD100K   =$F2         PD10K    =$F4         PD1K     =$F6
   PLAY     =$10         POS      =$3CD3       POS10    =$3CE2       POSA     =$3E01
?  POSA1    =$3DC7    ?  POSB     =$3E1A    ?  POSB1    =$3D8F       POSI     =$3F3E
   POSTBL   =$35E6       PRESNT   =$39B0       PTR      =$DC         PTRBIT   =$31DE
   PTRDON   =$31E7    ?  PURPLE   =$68         PW3      =$34F2       PWAIT    =$34F2
?  PWRTIM   =$D8      ?  RANDOM   =$D9      ?  RED      =$22         RESUM    =$80
   REVA     =$3C68       REVE     =$3C38       REVR     =$3C10       REVT     =$3C58
   REVTBL   =$39D5       REVX     =$3C48    ?  RIGHTD   =$02      ?  RIGHTI   =$08
?  ROUND    =$81         SBIMG    =$3900       SC4      =$3FC2       SCORE    =$3F96
   SCORE1   =$3FBA       SCORHI   =$83         SCORLO   =$82         SCORTB   =$38E8
   SCRCOL   =$00         SDAT1    =$3E65    ?  SDAT2    =$3E8A       SELECT   =$30
?  SETRAM   =$307C       SEVEN    =$38C8       SIX      =$38C0       SMLR     =$3C18
   SND5     =$35CA       SND80    =$35E3       SND99    =$35E5       SNDTBL   =$380F
   SOUND    =$35B5       SPR6     =$39E7       SPRIT6   =$39DB    ?  SWIADF   =$40
?  SWIBDF   =$80      ?  SWICOL   =$08      ?  SWIRES   =$01      ?  SWISEL   =$02
?  SWITCH   =$0282       TEMP1    =$EF      ?  TEMP10   =$F8         TEMP11   =$EC
   TEMP12   =$ED         TEMP13   =$EE         TEMP14   =$EA         TEMP15   =$EB
   TEMP2    =$F0         TEMP3    =$F1         TEMP4    =$F2      ?  TEMP5    =$F3
?  TEMP6    =$F4      ?  TEMP7    =$F5      ?  TEMP8    =$F6      ?  TEMP9    =$F7
   TEST2    =$327F       THREE    =$38A8       TIME64   =$0296       TIMER    =$0284
   TITL11   =$32C8       TITL12   =$32CE       TITLE    =$325C       TITLE0   =$32A0
   TITLE1   =$32BF       TITLE2   =$32EA       TITLE3   =$32F3       TITLE9   =$3303
   TOP2     =$3012       TOPEND   =$325C       TOPOFF   =$3667    ?  TOPTIM   =$B3
   TRACK    =$50         TRY1     =$3223       TRY9     =$3236       TRYON    =$321E
   TURNS    =$3203       TURNON   =$31C0       TWO      =$38A0       TWODIG   =$302B
?  UPD      =$00      ?  UPI      =$00         UPPTR    =$3036       VOLTBL   =$380B
   WAITS    =$3383       WHITE    =$0E         WORDS    =$39AA       XTRADO   =$70
   YCHRY    =$3E58       YELLOW   =$28         ZERO     =$3890
```

Symbol table - numerical order:

```
?  ATSYNC   =$00         BLACK    =$00         SCRCOL   =$00      ?  UPI      =$00
?  UPD      =$00         ATBLNK   =$01      ?  JOYBUP   =$01      ?  SWIRES   =$01
?  DOWND    =$01         ATWAIT   =$02      ?  JOYBDN   =$02      ?  SWISEL   =$02
?  RIGHTD   =$02      ?  ATHORC   =$03      ?  LEFTD    =$03         ATACTL   =$04
?  JOYBLT   =$04      ?  DOWNI    =$04         ATBCTL   =$05         ATACOL   =$06
   ATBCOL   =$07         ATPCOL   =$08      ?  JOYBRT   =$08      ?  SWICOL   =$08
```

	ATFR0	=$0D		ATFR1	=$0E		WHITE	=$0E		ATFR2	=$0F
	ATSALA	=$10	?	JOYAUP	=$10		PLAY	=$10		ATSBLA	=$11
?	BROWN	=$12		ATAWAV	=$15		ATBWAV	=$16	?	GOLD	=$16
	ATADIV	=$17		ATBDIV	=$18		ATAVOL	=$19		ATBVOL	=$1A
	ATADAT	=$1B		ATBDAT	=$1C		ATENMA	=$1D	?	ATENMB	=$1E
	ATENFM	=$1F		ATSAIN	=$20	?	JOYADN	=$20		DODEAD	=$20
	ATSBIN	=$21	?	RED	=$22		ATASEL	=$25		ATBSEL	=$26
?	ATFSEL	=$27		YELLOW	=$28		ORANGE	=$29		ATMVIN	=$2A
	ATREMV	=$2B		SELECT	=$30		GREEN	=$34	?	ATJBA	=$3C
?	ATJBB	=$3D	?	JOYALT	=$40	?	SWIADF	=$40		GAMOVR	=$40
	TRACK	=$50	?	PURPLE	=$68		XTRADO	=$70	?	JOYART	=$80
?	SWIBDF	=$80		GAME	=$80		RESUM	=$80	?	ROUND	=$81
	SCORLO	=$82		SCORHI	=$83		FRAMEL	=$84		FRAMEH	=$85
	AIDX	=$86		BIDX	=$87		ADUR	=$88		BDUR	=$89
?	DIGINV	=$8A		ALPHA	=$8B	?	CHERRYT	=$8C		APFALL	=$8D
	ANIM8	=$8E		FCOLOR	=$8F		CHERRYC	=$90	?	LBLUE	=$96
	FR1L	=$98		FR2L	=$A0		FR2R	=$A8	?	BOTTIM	=$AC
	FR1R	=$B0	?	TOPTIM	=$B3		BLUE	=$B6		LASTJY	=$B8
	MISLN	=$B9		MSBAND	=$BA		MISPOF	=$BB	?	MISDIR	=$BC
	MIDTIM	=$BC		DOBAND	=$BD		DIGBAND	=$BE		DOPOF	=$C0
	DIGPOF	=$C1		DODAT	=$C3		DIGDAT	=$C4	?	DIGDIR	=$C6
?	DIGSPD	=$C8	?	DIGTIM	=$CA	?	DIGIQ	=$CC		MUX	=$CE
	APBAND	=$D0		APPOF	=$D4	?	PWRTIM	=$D8	?	RANDOM	=$D9
	MODE	=$DA		DOINV	=$DB		PTR	=$DC		BAND	=$DD
	LODATA	=$DE		ADAT	=$E5		HIDATA	=$E6		APOF	=$E7
	TEMP14	=$EA		TEMP15	=$EB		TEMP11	=$EC		TEMP12	=$ED
	TEMP13	=$EE		LODATB	=$EF		TEMP1	=$EF		TEMP2	=$F0
	TEMP3	=$F1		TEMP4	=$F2		PD100K	=$F2	?	TEMP5	=$F3
?	TEMP6	=$F4		PD10K	=$F4	?	TEMP7	=$F5		BDAT	=$F6
?	TEMP8	=$F6		PD1K	=$F6		HIDATB	=$F7	?	TEMP9	=$F7
	BPOF	=$F8	?	TEMP10	=$F8		PD100	=$F8		PD10	=$FA
	PD1	=$FC	?	JOYDAT	=$0280	?	IOADIR	=$0281	?	SWITCH	=$0282
?	IOBDIR	=$0283		TIMER	=$0284		TIME64	=$0296		BOTVI	=$202E
	BVISW	=$3007		INITSW	=$300E		TOP2	=$3012		OK2	=$301F
	TWODIG	=$302B		UPPTR	=$3036		NDIG	=$3038		LSTLFT	=$3052
	ANIM9	=$3054		NORK	=$3068		ORK	=$306B	?	SETRAM	=$307C
	ISA	=$3086		NORMAP	=$30C1		APRAM	=$30C5		APR50	=$30F1
	DIG12	=$3109		DIG13	=$3112		DIG15	=$3115		DIG17	=$3122
?	DIG18	=$3127	?	APLFRM	=$312A		APLFR5	=$312F		DIG33	=$3144
	DIG40	=$3153		DIG45	=$3162		DIG50	=$3171		DIG60	=$317D
	DIG99	=$3189		COMPET	=$318C		COMP1	=$3191		COMP15	=$319A
	COMP2	=$31A2		CPETE	=$31AF		COMP3	=$31B2		CPETE2	=$31B7
	TURNON	=$31C0		FIRST	=$31CD		PTRBIT	=$31DE		PTRDON	=$31E7
	TURN5	=$3203		TRYON	=$321E		TRY1	=$3223		TRY9	=$3236
	APIMG	=$323C	?	MRDOIMG	=$3248		MDPTL	=$3248		MDPTR	=$324A
	DIGIMG	=$324C	?	LETIMG	=$3252		TITLE	=$325C		TOPEND	=$325C
	GAMSPD	=$327B		TEST2	=$327F		ORKSCR	=$329D		TITLEC	=$32A0
	IMG5	=$32B6		TITLE1	=$32BF		TITL11	=$32C8		TITL12	=$32CE
	IMG6	=$32E1		TITLE2	=$32EA		TITLE3	=$32F3		TITLE9	=$3303
	HOLDUP	=$3310		HOLD7	=$3329		HOLD9	=$3340		NOTSEL	=$3353
	HOLD10	=$335B		DO1	=$3378		WAIT5	=$3383		ORCHARD	=$338B
	ALFSET	=$33E0		NORM	=$33EF		PAL6	=$33F9		NOPWR	=$3451
	ICHERRY	=$3453		CHERRY5	=$346D		CDAT	=$3475		FTEST	=$347F
	DOTIME	=$3488		BAND1	=$34B3		NODO	=$34BA		MDON	=$34E7
	MDPOF	=$34EB		PWAIT	=$34F2		PW3	=$34F2		MUSIC	=$352B
	MUS2	=$3532		MUS5	=$3546		MUS15	=$3565		MUS25	=$356E
	MUS50	=$3570		MUS55	=$3588		MUS65	=$35A7		MUS75	=$35B0
	SOUND	=$35B5		SND5	=$35CA		SND80	=$35E3		SND99	=$35E5
	POSTBL	=$35E6		TOPOFF	=$3667		BOTOFF	=$3677		CHRPOS	=$3687
	AMUSFW	=$3697	?	AS1FW	=$3697	?	AS2FW	=$36C8	?	AS3FW	=$36E8
	AMUSVT	=$36F4	?	AS1VT	=$36F4	?	AS2VT	=$3725	?	AS3VT	=$3745
	BMUSFW	=$3751	?	BS1FW	=$3751	?	BS2FW	=$3782	?	BS3FW	=$37A2
	BMUSVT	=$37AE	?	BS1VT	=$37AE	?	BS2VT	=$37DF	?	BS3VT	=$37FF
	VOLTBL	=$380B		SNDTBL	=$380F	?	DEADSND	=$380F	?	BEEP	=$3817
?	BOOP	=$381D	?	BELLS	=$3823	?	CHER1	=$3828	?	CHER2	=$3838
?	CHER3	=$3845	?	CHER4	[illegible]	?	CHER5	[illegible]	?	CHER6	[illegible]

?	CHER3	=$3845	?	CHER4	=$3852	?	CHER5	=$385F	?	CHER6	=$386C
	DATA1	=$3890		DIGITS	=$3890		ZER[illegible]	[illegible]		[illegible]	=$389[illegible]
	TWO	=$38A0		THREE	=$38A8		FOUR	=$38[illegible]		[illegible]	$38B8
	SIX	=$38C0		SEVEN	=$38C8		EIGHT	=$38D0		NINE	=$38D8
	BLANK	=$38E0		SCORTB	=$38E8		SBIMG	=$3900		CHERRY	=$3900
	MRDOLL	=$3922		NULLB	=$3934		MRDORL	=$3944		MRDORR	=$3966
	MRDOLR	=$3988		WORDS	=$39AA		COLECO	=$39AA		PRESNT	=$39B0
	MRDOT1	=$39B6		MRDOTB	=$39B7		NULLTB	=$39BD		GAMETB	=$39C3
	OVERTB	=$39C9		LETTBL	=$39CF		REVTBL	=$39D5		SPRIT6	=$39DB
	SPR6	=$39E7		IMG1	=$3A00	?	APPLE0	=$3A00		APPLE1	=$3A00
	APPLE2	=$3A0E		APPLE3	=$3A1C		APPLE4	=$3A2A		APPLE5	=$3A38
	APEND	=$3A3A		DIGLR	=$3A4F		DIGLL	=$3A70		DUGLL	=$3A92
	DUGLR	=$3AB4		NULL1	=$3AE4	?	IMG2	=$3B00		DUGRR	=$3B00
	DUGRL	=$3B20		LETRE	=$3B49		LETRX	=$3B6A		LETRT	=$3B8B
	LETRR	=$3BAC		LETRA	=$3BCD		DATA2	=$3C00	?	LETTRS	=$3C00
	LM	=$3C00		LR	=$3C08		REVR	=$3C10		SMLR	=$3C18
	LD	=$3C20		LOH	=$3C28		LE	=$3C30		REVE	=$3C38
	LX	=$3C40		REVX	=$3C48		LT	=$3C50		REVT	=$3C58
	LA	=$3C60		REVA	=$3C68		LC	=$3C70		LL	=$3C78
	LO	=$3C80		LPR	=$3C88		LE2	=$3C90		LSE	=$3C98
	LN	=$3CA0		LTS	=$3CA8		LS	=$3CB0		NULL	=$3CB8
	LG	=$3CC2		LV	=$3CCE		POS	=$3CD3		POS10	=$3CE2
	LETPOS	=$3CEC		PAINT	=$3CF4		DLAY15	=$3D19		ASYM	=$3D25
?	NPOSA2	=$3D50	?	NPOSB2	=$3D60		ASYMB	=$3D6C	?	NPOSA1	=$3D79
?	POSB1	=$3D8F		LATB1	=$3D98		ASYMA	=$3DA2	?	POSA1	=$3DC7
	LATCH1	=$3DD6	?	NPOSB	=$3DDF		ASYMAB	=$3DF4		POSA	=$3E01
	LAT	=$3E0F	?	POSB	=$3E1A		LATB	=$3E27		ASYMV	=$3E32
	YCHRY	=$3E58		NCHRY	=$3E5E		SDAT1	=$3E65		MTEST	=$3E79
	NOMIS	=$3E87	?	SDAT2	=$3E8A		MIS1	=$3EA2		MIS2	=$3EAD
	CYCL41	=$3EB4	?	ASYMD	=$3EBD		NUBAND	=$3EEB		FIN	=$3EFC
	POSI	=$3F3E		INV2	=$3F63		INV3	=$3F65		PAL4	=$3F6F
?	INVENT	=$3F74		DOLOOP	=$3F76		INVTBL	=$3F8F		SCORE	=$3F96
	SCORE1	=$3FBA		SC4	=$3FC2		END	=$3FFE			